

**Safe and Efficient Small Arms Collection and  
Destruction Programmes: A Proposal for  
Practical Technical Measures**

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The United Nations Development Programme (UNDP) helps people in 174 countries and territories to help themselves, focusing on poverty eradication and democratic governance. In support of these goals UNDP is frequently asked to help create and implement policies that are more responsive to the needs of ordinary people, and to help societies rebuild in the aftermath of war and humanitarian emergencies. UNDP is also an advocate for increased development assistance and a more inclusive global economy.

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<sup>1</sup> The research for this paper was carried out as part of a Master of Art's degree thesis in International Conflict Analysis at the University of Kent, Canterbury, England. The paper is also to be formally presented at a RUSI forum in Autumn 2001.

## Letter from Omar Bakhet

The overwhelming weapon of choice in the conflicts that have ravaged developing countries over the last decades has been the rifle or other small arms that can be easily purchased, easily concealed and carried, and easily used. These small arms kill over 200,000 people a year, injure many more, and drive millions of people from their homes and communities.

As a result, it has been recognized by a convergence of actors—among local communities, national governments, and the international community—that programmes to collect, manage and destroy small arms as part of a comprehensive approach to restore stability in affected areas are essential. Reducing the prevalence of small arms, while providing very real alternatives to violence through livelihood opportunities combined with an improved security and human rights environment have yielded significant results.

Yet small arms and ammunition are inherently dangerous, and mishandled or mismanaged, they represent grave dangers, not only for a small arms programme, but also for an entire peace-building effort. This study is an attempt to analyze small arms collection and disposal programmes, from conception to execution, to ensure maximum effectiveness and safety.

As UNDP has expanded its small arms programme as part of its efforts to reduce violence and promote development, it has emerged as a leader in promoting safe practices and standards for micro-disarmament—the proper collection and disposal of the weapons. In programmes in Albania and the Republic of the Congo, proper procedures have contributed to highly successful programmes that resulted in the safe destruction of thousands of small arms and items of ammunition.

This study is not only an effort to consolidate best practices. It also marks a major contribution to the debate on proper micro-disarmament strategies and procedures. The six underlying principles for micro-disarmament, safety, control, transparency, sustainability, replicability, and legitimacy, will be useful to our partner country counterparts as well as programme managers in small arms reduction efforts, or related areas, such as in mine removal or the disposal of other unexploded ordnance.

To prevent conflict and violence from undermining development, effective disarmament programmes are vital, and effective programmes must be designed using the best practices available. This report is a continuation of UNDP's commitment to put best practices to work where they are needed—in the countries and communities where disarmament must take place.

Omar Bakhet  
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New York, 1 July 2001

# Foreword

The number and the intensity of armed conflicts have significantly increased around the world in recent years. As a result of this violence, the social and economic development of affected societies in many of the world's poorest countries has often regressed. This phenomenon has been accompanied by the tragic loss of human life, large-scale migration, destruction of infrastructure and a reduction or cessation of trade.

Disarmament, demobilisation and reintegration (DDR) is one precursor to the establishment of a stable and secure environment that allows the process for a return to normality to begin. This return to normality will involve the return of refugees and displaced persons, the rebuilding of basic infrastructure and the establishment of democratic governance. The presence of a large number of illicit small arms and light weapons is a major threat to this process, and therefore immediate attempts must be made by the international community to develop some form of response to this threat.

Previous experience has shown that the implementation of a micro-disarmament programme is one threat response mechanism that can have a degree of success. However, it must be remembered that micro-disarmament is only one part of the disarmament, demobilisation and reintegration continuum. This continuum must be integrated and progressive in order to reach the long-term goals of sustainable peace and development.

Micro-disarmament programmes inevitably lead to the return of unstable and inherently dangerous ammunition and explosives in parallel to the return of weapons. Not only does this create a physical threat to human life, but also it can be a threat to the whole disarmament, demobilisation and reintegration process. Any civilian casualties as a result of the instigation of such programmes can have a negative effect on the credibility of the organisation conducting the operation, leading to a lack of confidence in their abilities by the local community and the subsequent withdrawal of consensual support for the process. Without appropriate weapon and explosive safety measures, past experience has shown that such casualties are inevitable. This paper addresses this issue and recommends an operationally proven and safe technical methodology for use on all future micro-disarmament operations.

It is often difficult to make an assessment of the success of micro-disarmament operations, either during or after the process. Information is difficult to obtain, and therefore programme planning and the ability to make sound management decisions is limited. It is essential that the appropriate information is obtained, in sufficient detail, to enable sound judgemental decisions to be made. This paper therefore establishes principles and procedures for information gathering during micro-disarmament programmes, and suggests performance indicators (PI) that can be used to indicate or measure the effects of a programme on the local community.

To be most effective, it is important that this technical methodology is included during the strategic, operational and detailed mission planning phases of programme development. The technical threat will have a significant influence on the future success or failure of a programme, and therefore, the appropriate expertise must be involved from the beginning. The financial costs of this technical methodology are low when compared to

total programme costs, yet they have the potential for high impact on programme success.

The inherent dangers in dealing with unstable ammunition and explosives means that the provision of sound advice and recommendations is necessarily a highly technical task. Military forces deployed in support of United Nations or regional organisation sponsored peace support operations do not necessarily have the capability to provide this advice. The skills of the military as a whole are not necessarily those required to provide technical support to micro-disarmament operations. For example, an infantry or engineer trained soldier may have solid skills in weapons and explosive use and handling, but will generally not receive sufficient training in ammunition and explosive safety matters. This paper aims to establish the generic training and qualification requirements for the provision of this critical advice.

The United Nations Development Programme, Emergency Response Division supports the directions contained within this paper, and hopes that the technical methodology will prove to be an important tool in the implementation and conduct of safe and efficient future micro-disarmament programmes.

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# Chapter 1

## Introduction

### 1 Background

Since the conclusion of the Cold War the risks of major world conflict have receded, but new fears and conflicts have arisen in their place. The last decade has witnessed growing social instability in many countries that has led to particularly violent regional conflicts. These internal conflicts, fueled by an increase in ethnic and religious tensions, have resulted in human rights violations, poverty, crime and economic degradation in the affected countries. Increasingly, innocent civilian populations have been the victims of violence perpetrated by the use of small arms and light weapons (SALW). In these conflicts, where local fighting has superseded the more traditional use of formed armies, SALW are the preferred weapons since they are cheap to obtain, plentiful in supply and simple to use.

Resolving these recent internal and external conflicts has necessitated the deployment of peacekeeping forces, international organisations and non-governmental organisations (NGO) to assist in the development of a sustainable peace. Yet achieving a sustainable peace has proved difficult in such environments due to the continued proliferation of SALW in these regions. As a result, micro-disarmament has become a prerequisite for the consolidation of the peace process and for assisting the progress towards stability. Experience has shown that micro-disarmament alone rarely has long term benefits, and must form part of a larger continuum of disarmament, demobilisation and re-integration of ex-combatants. This continuum must be integrated and progressive if the long term aims of sustainable peace and development are to succeed.

The proliferation of small arms has enormous human and financial costs. At a recent Geneva international conference in February 1999, the Swiss Head of Foreign Affairs **Flavio Cotti**, estimated that SALW were responsible for 90% of the victims (mostly civilian) of today's conflicts, that they were used systematically in 43 of the 47 most recent armed conflicts, and that they claimed between 200,000 to 300,000<sup>2</sup> lives per year. The international community has now recognised this as a major threat to world peace. UN Secretary General **Kofi Annan** recently declared, "*it is incumbent on all of us to translate this shared awareness into decisive action*".

A range of measures is being instigated to attempt to control the proliferation of SALW. These fall under three main headings: 1) **Reduction Measures**; 2) **Preventive Measures** and 3) **Co-ordination measures**. The subject of micro-disarmament falls

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<sup>2</sup> Figure cited in International Small Arms/Firearms Control: Finding Common Ground, Wendy CUKIER, Canadian Centre for Foreign Policy.

under Reduction Measures, which also includes reducing the stockpile of SALW within the international community to an appropriate level in terms of defence and internal security. The main thrust of this international effort is to prevent the proliferation of SALW and to control the illicit flow of these weapons. Logically, it is too late to prevent internal proliferation of small arms following an armed conflict, as the weapons are already present in the community. However, an attempt can be made to reduce the internal supply and prevent an illicit outflow from the affected country through micro-disarmament programmes.

Micro-disarmament is only one part of the process for the termination of a conflict and the move towards future stability, but it is the important first step. It is also an important factor in ensuring the future stability of a country that has already ended a conflict, yet still has weapons available in the community. An internal armed conflict that has caused massive destruction, the internal displacement of many people, and severe damage to the economic infrastructure, inevitably leads to feelings of mistrust, fear and a desire for revenge among the population. Therefore, confidence and security building measures are crucial to the success of the peace process and micro-disarmament is one of the most visible of measures.

The over-riding aim of any micro-disarmament programme must be:

***“To secure a safer environment and to control small arms and light weapons, including related ammunition and explosives, within a country or region in order to encourage the conditions that will assist the continued return of the region to normalisation”.***

There are six principles pertaining to micro-disarmament programmes which underpin the whole hypothesis of micro-disarmament operations. These principles are; 1) **Safety**; 2) **Control**; 3) **Transparency**; 4) **Sustainability**; 5) **Replicability** and; 6) **Legitimacy**.

A range of different options for the type of micro-disarmament programme have been tried in the past, ranging from simple “buy back” programmes in El Salvador to “voluntary surrender in exchange for development” in Albania. Although the political, social and economic conditions will differ in each environment, the technical threat—in terms of the dangers that SALW pose to the local population—will be broadly similar. This paper will therefore examine this technical threat in detail and propose a technical methodology for use in all future programmes. The paper will propose the pro-active and re-active measures that should form part of any future micro-disarmament programme.

## **2 Definitions and Terminology**

In such a potentially complex arena, particularly when combined with the potential problems of an exact technical translation, it is very important that the correct terminology is used. All participants in the micro-disarmament process, from the international organisations to the national authorities to the local population, must have a clear understanding of what each term represents. Any confusion will only lead to mistrust, which is probably the major problem that any micro-disarmament programme seeks to dispel.

Proposed definitions for acceptance and future use by the international community are contained in **Annex A**.

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# Chapter 2

## Pro-active Measures

### Information Gathering

#### 1 Introduction

##### 1.1 Small Arms

Many of the problems that occur during peace enforcement, peace keeping and peace monitoring can be related to the tracking of potentially hostile intentions and, more significantly, hostile capabilities of opposing factions. The chief capability to be identified, tracked and removed from volatile peace keeping situations is invariably that of ***Small Arms and Light Weapons (SALW)***.

Small arms are dangerous for three main reasons: they are cheap; they are usually plentiful (there are usually more AK 47s than there are tanks), and finally, they are more easily concealed.

##### 1.2 Light Weapons

There has been a trend towards miniaturization in weapons development, leading to greater portability, mobility and concealability. The result is that many weapons previously thought of as a 'medium' weapons (such as the explosive missile projector), are now effectively considered as an individual "light weapon," to be classified with more traditional man portable small arms. The US M72 and the Russian RPG 7 are classic examples.

##### 1.3 The Threat

The need to control the acquisition, spread and use of SALW is therefore of paramount importance to prevent politically dangerous situations from escalating or to bring any conflict under control. For the peacekeeper, politician and arms controller alike, SALW are a major threat, and are therefore a prime information requirement for any agency charged with keeping the peace, or involved in developing indigenous capacities. As any policeman can testify, criminals with guns are more dangerous than without them. This blinding glimpse of the obvious is, however, fundamental to the intellectual basis of any political need to control small arms. They are fundamentally dangerous and their removal from the equation either by control, neutralisation or removal is essential. The first step is gain information on their numbers and whereabouts.



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## 2 Special Factors In UN Peacekeeping and Development Operations

For the agency charged with a requirement to identify, track and monitor these SALW, there are a number of special factors that complicate the issue.

### 2.1 Ubiquity

SALW are by definition small, portable, widespread, easily concealed and cheap. They therefore represent a particular challenge to the information gathering staff. The quantity and distribution alone can often cause problems.

### 2.2 Separation by Use

There are numerous *official* sources of SALW in most societies. Police and other law enforcement agencies routinely have access to small arms. A clear distinction between legal and illicit SALW is sometimes difficult to achieve.

### 2.3 Political Sensitivity

Most peacekeeping or development work necessarily involves the collection of information on warring or former warring factions within the troubled community. When external or international forces are being used to maintain or enforce peace that will usually involve information collection on the internal organisations of the host state, with the resulting risk of, for example, accusations of "spying on another member of the UN", etc. Like many other peacekeeping issues, it is a politically sensitive task.

### 2.4 Security

The information acquired by international peacekeepers or development workers could be a target for warring or former warring factions within the target country, who may be keen to discredit the UN (or any other international organisation). Security of international information is therefore of paramount importance.

### 2.5 Supply

There are frequently significant commercial interests bound up in the manufacture, sale and supply of SALW. Loss of profits to both legal and illegal organisations means that the economic dimension often has to be factored in by the information gathering team as part of any policy on SALW monitoring or disarmament.

### 2.6 Cultural

In some societies, the possession, display and carriage of SALW is a masculine norm. Insensitive removal of weapons may have cultural and social implications, and indeed may inspire an unexpected political backlash.

## 2.7 Principles of Information Gathering

These special factors have to be considered as part of any information gathering process in addition to the well known "Principles of Information Gathering " which are broadly agreed as:

- ❑ A single centralised Control Authority at headquarters level.
- ❑ Continuous ("cyclical") review of both requirements and assessments.
- ❑ Planned tasking and exploitation.
- ❑ Accessibility of product and assessments to those with a need to know.
- ❑ Objectivity of assessment.
- ❑ Timely dissemination.

## 3 The Information Gathering Task

### 3.1 Mission

The task of the information gathering team in a situation requiring the identification, tracking and monitoring of SALW can be potentially sensitive and complicated. Within these limitations it can, however, be clearly defined as a straightforward mission or aim:

***"To provide the international community and developmental programme manager with the exact number, types, capabilities, locations, movement and supply of SALW within the area of responsibility and to alert them in good time to any intended use, storage or disposal."***

It is a tall order, but with properly trained staff and sufficient resources, it can be done. To start the process, the developmental programme manager has to provide clear direction to the information gathering team, by stating his information requirement. It is this *information requirement* that drives the whole process, and the developmental programme manager must be encouraged to get it right without political interference or external influence. It is an objective task.

## 4 The Information Requirement

The information requirement must always be laid down by the implementing agency . On no account should information gathering teams be allowed to devise their own terms of reference or define their own targets. They may - and indeed they should - be asked to *advise* on what the possibilities and the technical difficulties are, but the overall statement of information required is ultimately a programme manager's responsibility. Once there is a clear direction of information requirements from the programme manager, then the information cycle is employed to give structure to the response. (A statement of the programme manager's information requirement might be phrased in terms similar to the mission given at paragraph 3 above.)

## 5 The Information Cycle

### 5.1 Processing Information?

All information gathering and evaluation should follow a clear, logical and systematic cycle of work. The usual convention is for the *information cycle* to govern the pattern of changing *information* into a useful management tool. It is important to clearly distinguish the difference between the two: raw *information* is unevaluated material from any source from which might be processed to provide useful management information; *this management information* is the product of the systematic collection, collation, assessment and interpretation which is then provided to designated users.

A clear definition of management information for SALW is therefore:

*"Processed and analysed information on SALW capabilities, locations, supply, movements and intentions for use, presented accurately and promptly, to enable decision makers to arrive at correct judgements in order to direct decisive action in time to influence events."*

From this clear task the other four components of the information gathering cycle ('direction' being the first) now follow logically. These are:

- Collection.
- Collation.
- Interpretation.
- Dissemination.

### 5.2 Asking the Intelligent Question

Once the programme manager's direction - or requirement - has been clearly given, then the information gathering team can follow the cyclical procedure. Every task will initially be expressed as a question to be answered. For example, "*How many AK 47s are there in area X?*" will inspire a *Collection Plan*.

### 5.3 Collection

The collection of information should follow a number of clear and straightforward principles. It should be planned. It should reflect the urgency of the programme manager's needs - so it must be prioritised. It must include all available sources and agencies and make best use of their capabilities (for instance, it is clearly pointless and wasteful to task a maritime airborne search radar with locating the whereabouts of a few SALW in individual hands). Last, but not least, it must give a clear indication of the deadline for an answer.

### 5.4 The Collection Plan

This is an invaluable tool for monitoring the tasking and progress of sources and agencies. The programme manager's information requirement is broken down into its

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components by a series of critical information requirements, (CIRs) or, more commonly, "the Essential Elements of Information." (EEIs) An example of a collection plan for SALW is at **Annex B**

## 5.5 Sources and Agencies

Much unnecessary confusion exists over which is which. A *source* is something or someone that physically collects information - for example, a human agent or an aircraft with a camera reconnaissance fit. An *agency* is the organisation that controls that source. Sources may be directed or undirected: a directed source (e.g. an informant) can be tasked with a specific question, whereas regular news bulletins from a political group's radio station cannot be tasked. A list of key sources and agencies are shown in **Annex C**.

## 5.6 Relative Merits of Sources

From this list of sources and agencies - which is not exhaustive and could be refined at length - it is clear that some sources are better tailored to the needs of the SALW problem than others. In drawing up the Collection Plan, the information gathering team must always bear in mind the strengths and weaknesses of each source in answering the information requirement question.

## 6 Collation

Collation is the system for receiving, registering, recording, sorting and retrieving information so that it can be systematically processed into useful management information.

### 6.1 Systems

The advent of the computer and massive databases has tended to overshadow the principles by which information is collated and have allowed the tyranny of the "database" to drive the system. This can be a mistake, unless the three key elements of collation are kept equally in balance: receiving; recording; and retrieval. Any failure on one of these key steps will render even the most sophisticated database suspect in use.

### 6.2 Security

The problem is compounded by the vital need for security. Modern trends toward "integrated" all-source databases, which allow rapid comparison of information by analysts and highlight collection gaps, are inherently extremely tempting targets for hostile attack. Open source unclassified news cuttings are often filed with nationally sensitive material passed on a privileged basis. The integrated all source database therefore represents the 'Crown Jewels' of any information gathering intelligence organisation or operation, so access must be closely controlled and monitored in the interests of security and its storage protected to the highest degree.

### 6.4 Key Collation System Characteristics

In addition to rapid retrieval and accurate storage, a good collation system (be it computer automated or a manual card index) must have standardised subject headings

and filing systems and be cross-referenced with other data, in order to be responsive to the same query coming in different forms.

## 7 Interpretation

### 7.1 Importance of Processing

The most crucial task of the whole cycle is the processing and analysing of information to transform it into useful management information . Failure to correctly assess the information so expensively obtained and so painstakingly collated will render them both increasingly pointless. No computer can answer the questions as well as the experienced and thoughtful analyst who understands what is required.

### 7.2 A Method of Interpretation

Interpretation usually consist of three discrete phases:

#### 7.2.1 Assessment of the information

Is it true? To do this the analyst will usually look at the source and the information. Both should be graded separately. The two key questions are, 'how much can I believe this source?' and, 'is it credible?'

#### 7.2.2 Source Assessment

Thus a report on a small arms find by a military patrol comes from a *normally reliable source*. If it is *confirmed by an independent source*, such as a television report, it is probably true, (although exact numbers and details must be checked later). These procedures are well understood by cynical journalists and reporters but are often overlooked by senior international officials when watching CNN in their offices .

#### 7.2.3 The Three Key Questions

The second phase of the interpretation process consists of asking three key questions by the experienced analyst:

- Who/What is it ?
- What is it doing?
- What does it mean?

### 7.3 Checking the Assessment

By comparing their own answers to the first two questions with other information, cross referencing with other current or historic data, and by using their judgement and experience to overcome the possibility of deception, the analyst can make an assessment of "what does it mean?" This interpretation of events then needs to be checked to see if it is a rational answer to the programme manager's information requirement. This is usually done by posing a new information requirement into the collection plan to validate the assessment from other sources.

## 7.4 Importance of Professional Experience

In practice, this seemingly black art of interpretation or analysis is surprisingly amenable to codification. For example, a find of a few rusting obsolete weapons will usually trigger alarm bells of concern that this represents a planted "political find" rather than a genuine discovery of illicit arms to the experienced analyst. Wise analysts invariably ask themselves, "*cui bono?*" - who benefits? as a tool of interpretation. At the end of the day however, there is no substitute for professional knowledge and experience.

## 8 Dissemination

### 8.1 The Needs of the "Customer"

By far, the most flexible component of the information cycle is dissemination, which can take many different forms depending on the situation, the customer's need and the urgency. Different organisations and programme managers invariably have different perceptions of their requirements and the regularity of the information they require. It is essential to check on the "customers' requirements".

### 8.2 Forms of Dissemination

Dissemination usually takes one of three forms: the oral presentation or briefing; written/pictorial hard copy; or electronic/computerised networked material. All three have their benefits and need to be balanced against the urgency of customers' requirements and the need for dialogue with the recipient. Current information for a decision briefing will usually be verbal. Long term basic background information is best presented as hard copy. All must be disseminated to the customer with a need to know.

### 8.3 Principles of Dissemination

The following principles should govern the dissemination of information.

#### 8.3.1 Security

Who needs to know? Excessive secrecy can render good information useless. Information squirreled away is not useful management information. Even manure has to be spread on the fields to encourage growth. So disseminating information must be balanced against an organisation's security of life and operations. Such considerations are especially important in international operations, where there is a very real danger of individuals being given access to information or briefings they do not need to know for reasons of prestige or even international balance. The effect is invariably to drive the real useful management information into a smaller "kitchen cabinet" which can be "trusted". In the final analysis the implementing agency - who has the most to lose, must determine who is told what.

#### 8.3.2 Accuracy

This is obvious but can be forgotten in the rush to get an urgent brief across. Every fact must be checked, every statement tested. To be exposed as wrong *through lack of attention to detail or other known facts* will ruin an information gathering team's credibility quicker than anything else.

### **8.3.3 Brevity**

Keep it short and digestible.

### **8.3.4 Standardisation**

A common or standard format aids the passage and assimilation of key information or facts. (Ironically, the greatest achievements of NATO and the Warsaw Pact, over the years, is believed to be harmonisation through standardisation of operating procedures.)

### **8.3.5 Separation of Fact from Comment**

Facts must be presented as checked fact. In the same way, comment should be identified clearly as a separate statement. For example, "We have identified a cache of 100 small arms in the machine shop at Abc. Our comment is that we assess this to be the shipment which we know was being planned to be moved into the town last night. "

### **8.3.6 Timeliness**

The most accurate and reliable information in the world is useless if it arrives late or, worse, is not passed on at all.

## **8.4 Summary of the Final Product - Dissemination**

Both unevaluated facts and comment should be passed on where necessary but must be identified as such and separated from checked fact. Where necessary, sources must be protected to ensure the continued flow of their product.

## **9 Conclusion**

Operations information is a task fraught with political and military sensitivity. It cannot be undertaken in an amateur or ad hoc manner, as the risks of political embarrassment and the possible compromise of a Security Council mandate will have serious consequences for the success of any mission.

Nonetheless the efficient and secure implementation of operations information is vital to the success of any UNSC task. It must therefore be factored into all intervention planning, civil or military, if the mission is to be conducted effectively. To do this preplanning, professional staffs and an awareness of both the diplomatic pitfalls and the likely sources of information by both programme managers and potential military contingents are essential to the to the achievement of any micro-disarmament operation.

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# Chapter 3

## Re-active Measures

### Explosive Safety in the Community

#### 1 Risks and Hazards

In order to consider the technical threat during a micro-disarmament operation and then implement an appropriate response it is necessary to understand the difference between risks and hazards. A **hazard** can be defined as “*a potential source of physical injury or damage to the health of people, or damage to property or the environment*”, whilst the **risk** can be defined as “*the combination of the probability of occurrence of a **hazard** and the severity of that hazard*”. In terms of micro-disarmament operations many hazards are created by the presence of weapons, ammunition and explosives; whilst the risk is dependent on the intentions of the individuals concerned, their knowledge and training, the physical condition of the weapons, ammunition and explosives and the environment that they are stored or used in.

A formal **risk assessment** should be conducted prior to micro-disarmament operations in order ensure the safest possible working environment. This risk assessment should identify the **tolerable risk** (the risk accepted in a given context based on current values of society) and then identify the necessary **protective measures** to achieve a **residual risk** (that risk remaining after protective measures have been taken). In developing this "safe" working environment it must be acknowledged that there can be no absolute safety and that many of the activities undertaken during micro-disarmament operations have a high risk associated with them. However, national authorities, international organisations and NGOs must strive to achieve optimum safety.

*"Safety is achieved by reducing risk to a tolerable levels. Tolerable risk is determined by the search for an optimal balance between the ideal of absolute safety and the demands to be met by the product, process or service, and factors such as benefit to the user, suitability for purpose, cost effectiveness, and conventions of the society concerned. It follows that there is a need to review continually the tolerable level, in particular when developments, both in technology and in knowledge, can lead to economically feasible improvements to attain the minimum risk compatible with the use of the product, process or service."*<sup>3</sup>

The factors to be considered in order to achieve tolerable risk include; 1) the selection of equipment with inherently safe design; 2) the development of work practices that

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<sup>3</sup> Draft UN International Standards for Mine Action (ISMA) 05.10, Safety & Occupational Health General Requirements, June 2000.



contribute to risk reduction; 3) sound training; 4) management and supervision and: 5) personal protective equipment.

Societal expectations are increasing the pressure on organisations to reduce the risk of illness, accidents and incidents in the workplace. These expectations include pressure to ensure equity of treatment for employees regardless of the location of the workplace. The international community should not be exempt from this pressure during the conduct of micro-disarmament programmes.

## **2 The Media Awareness Dichotomy**

A major operational pre-condition prior to the commencement of the physical recovery phase of a micro-disarmament programme will inevitably have to be a media awareness campaign. The harsh reality in many operational scenarios will be that there will also be a concurrent threat from mines and unexploded ordnance (UXO) present; this will necessitate de-confliction of the separate media awareness campaigns in order to save lives. This will present a major dichotomy, and liaison between the two organisations responsible is imperative to ensure that as safe an environment as possible is maintained.

On one hand the mine awareness campaign will be educating the population as to the danger to human life that mines and UXO present, whilst strongly recommending that they do not touch anything. On the other hand the micro-disarmament campaign will be trying to educate and encourage the population into a voluntary surrender of any weapons that they may have.

The problem is that if the population possess Small Arms and Light Weapons (SALW), then they will also possess the associated ammunition and explosives to use in the weapons. They may also possess “self-contained” weapons such as Rocket Launchers and Hand Grenades; that is they consist of a delivery system as well as a warhead. Whilst it will be made clear during the micro-disarmament media awareness campaign that ammunition and explosives should not to be surrendered with the weapons, the local population who choose to surrender their weapons, will very likely surrender the ammunition and explosives as well, as they would have no further legitimate use for such items.

The organisation responsible for the micro-disarmament operation therefore has a “Duty of Care” to ensure that the highest possible standards of explosive safety are imposed on such a programme.

## **3 Explosive Safety**

There are major explosive safety implications implicit in any micro-disarmament operation, ranging from the physical condition of the ammunition to the degree of knowledge and training of the local population. The major problem areas are discussed in the following sub-paragraphs.

### **3.1 Physical Condition of Ammunition and Explosives**

The local population are very unlikely to have the degree of technical knowledge necessary to be able to determine the conditions that the recovered ammunition has

been stored in, whether it has deteriorated and what state the fuzing systems are in. International standards for the safe storage of ammunition and explosives are necessarily very strict. They cover areas such as the type and construction of explosive storehouses (ESH), surveillance of ammunition in storage, the types of ammunition that can be stored together, fire prevention measures and operational standards to be followed. The local population will inevitably not have access to this information and will be unaware of the very real dangers that ammunition and explosives can pose if not stored properly. If the ammunition is not stored properly then it can be affected by conditions such as the ingress of moisture and the diurnal cycling<sup>4</sup>. This can significantly affect the stability of ammunition and explosives to the degree that it becomes unsafe to handle.

### **3.2 Movement of Ammunition and Explosives**

Specialised training in the science of explosives—in the design of ammunition and in explosive safety principles—is necessary to develop the technical expertise necessary to assess the physical condition, stability and safety of ammunition and explosives. International explosive safety standards insist that all ammunition and explosives should be certified as being “Safe to Move” before any form of transportation is allowed. This caution has often been ignored, and one voluntary surrender programme has even suggested that the local population should move ammunition and explosives to a weapons collection point (WCP) without such an inspection taking place.

This presents the organisation conducting the micro-disarmament programme with a real challenge. Ideally the population should have access to a system whereby an ammunition expert can travel to the storage area to make a safety assessment, but the political reality may mean that this is not possible. The worse case scenario is that no advice is given. The majority of programmes will necessitate the production of simple safety cards for distribution during the media awareness campaign.

### **3.3 Response to Mine/UXO Threat**

Past experience has shown that there is always a possibility that civilians will take the risk and move laid mines or UXOs to local authority collection points in order to remove a hazard to their homes or land. Any suggestion that this activity “rewards” the local community only exacerbates the problem.

### **3.4 Safety Guidelines**

Guidelines are rarely made available by the national authorities to the civil population for the safe storage and movement of ammunition and explosives. These must be provided by the organisation responsible for the micro-disarmament operation.

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<sup>4</sup> Diurnal Cycling is the exposure of ammunition and explosives to the temperature changes induced by day, night and change of season. For example, in the Gulf region, ammunition and explosives can be subjected to diurnal cycling from -20°C to +55°C.

### 3.5 Explosion Danger Areas

There are international standards that explain the explosion danger areas that should be established for all explosive storehouses. While these help to reduce the risk, they are rarely implemented in the communities that are storing weapons, ammunition and explosives. The local authority storage locations are often be in close proximity to local authority administrative locations and are usually unlicensed for the storage of ammunition and explosives and unsecured. The ammunition and explosives in the hands of the local population will generally be hidden somewhere on their property, thereby presenting a continual risk to human life.

### 3.6 Safe Destruction of Ammunition and Explosives

The safe destruction of recovered or captured ammunition and explosives present a variety of technical challenges. Multi-item demolition, as opposed to the in situ destruction of a single UXO, is a complex subject, which requires a significant degree of additional training beyond what is normally provided to the “combat engineer” or EOD Technician. Incorrect procedures can lead to further UXO contamination of the local area if the demolition is not prepared correctly and ammunition is then subsequently “kicked out” during demolitions. This “kicked out” ammunition will have been subjected to external forces similar to those found when fired from a weapon. These forces, (spin, set back, centripetal and set forward), are the forces used by the fuze designer to arm the munition, so that in effect, the ammunition will be in an armed condition and therefore unsafe.

This scenario would require a pre-planned UXO clearance operation of the entire area around the demolition pits, an operation that is expensive, time consuming and dangerous. The whole scenario can be avoided by proper planning at the risk assessment phase of the micro-disarmament operation. A proper demolition ground should be sited near every weapons collection point to enable the immediate destruction of any unsafe or unstable ammunition or explosives that are handed in by the local population. Professional explosive engineering advice must be taken to ensure that the location of these areas does not endanger the civilian population or their property.

### 3.7 Effectiveness of Media Awareness Campaign

The media awareness campaign for a micro-disarmament programme often fails to highlight the difference between Mines/UXOs and stockpiled ammunition, nor does it identify the inherent hazards in dealing with ammunition and explosives that have been stored in far from ideal conditions. It is essential that a proper level of technical advice is provided to the media awareness campaign in order that the “Duty of Care” is then met.

## 4 International Standards

Currently,<sup>5</sup> there are no current international technical standards that relate to the establishment of a safe micro-disarmament programme. The establishment of such

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<sup>5</sup> 01 May 2001.

standards would ensure that the technical aspects of all future micro-disarmament programmes are as safe as is practically possible, that common standards are applied and would ensure that the international community has addressed its “Duty of Care” during such operations. The UNDP pilot programme in Gramsh, Central Albania, working from a framework technical methodology developed by a NATO EOD team <sup>6</sup>, has made great progress towards the development of such standards.

The initial NATO technical methodology has been further improved by a UK commercial company, EOD Solutions Limited, which has developed a computer based system, (Weapons and Ammunition Recovery Database (WARD <sup>©</sup>)) <sup>7</sup>, that contains both practical guidelines and a fully auditable accounting system for recovered weapons. Elements of this system were adopted by the UNDP pilot programme in Gramsh, Central Albania during late 1998 and early 1999.

This thesis proposes that the international standards and guidelines that follow should be adopted by UNDDA as the UN standard. The basis of these standards should be a common General Safety Policy and Quality Policy. A suggested approach can be found in **Annexes D** and **E**.

## 4.1 Technical Planning and Operations

The technical planning and operational phases of a micro-disarmament operation should be conducted in parallel to the political and socio-economic activities. The practical success of an operation will be enhanced by the adoption of an integrated response from the outset of the operation.

### 4.1.1 Pre-operational Activities

- ❑ An appropriately qualified Technical Advisor (TA) should be appointed to the micro-disarmament programme implementation team during the planning phase.
- ❑ Detailed Terms of Reference (TOR) should be established for all technical personnel, including locally employed support staff. TOR for the TA are at **Annex F**. The QTR should have the qualifications and experience shown at **Annex G**.
- ❑ A detailed threat analysis should be conducted in conjunction with a formal risk assessment for the programme.
- ❑ The technical capabilities of the local authority and population should be determined in order to 1) establish the level of support they are initially capable of providing to the programme and; 2) establish the degree of

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<sup>6</sup> Major A E A Wilkinson MBE MSc RLC (UK Army), Operations Officer, NATO EOD and Ammunition Storage Support Team to Albania, November 1998.

<sup>7</sup> WARD<sup>©</sup> (Weapons and Ammunition Recovery Database), EOD Solutions Limited, October 1999.

training and development necessary to provide the local authority with a sustainable capacity for the future.

- ❑ Prepare, translate, print and issue laminated Safety Cards, (see WARD<sup>®</sup> for content). These Safety Cards only provide low level technical advice to the local population that can be followed without any specialist tools and equipment.
- ❑ Establish an accounting system and an audit trail for the recovered weapons, ammunition and explosives. Again, the WARD<sup>®</sup> system has the technical capability to do this.
- ❑ Establish an immediate EOD response capability. Experience has shown that this capability will certainly be required during the initial collection phase until all participants have been trained and practised on the procedures to be adopted. For example, over seventy Render Safe Procedures (RSP) were conducted on unsafe or unstable munitions during the first month of the UNDP Gramsh pilot programme in Albania.
- ❑ Issue Standing Operating Procedures (SOPs) to the local authority for the safe collection, storage and transport of munitions. (See WARD<sup>®</sup> for details).

#### **4.1.2 Weapon Registration**

It may be possible to start a programme of weapon registration as a first step towards the physical collection phase. Such programmes could provide both the international community and the local security agencies with a rough indication of the scale of the problem. The advantage to the local community is that they can retain their weapons until they feel that the security environment is sufficiently safe to allow for weapons surrender.

Again, the principles of Safety, Control, Transparency, Sustainability, Replicability and Legitimacy must be followed if this process is to have any validity. The registration process should be jointly operated by the international community, local law enforcement agencies (if present) and representatives from the local community. External monitoring by an acceptable organisation such as the UN or OSCE should also be allowed.

Weapon registration is a simple process and the accuracy of the process depends solely on the data collection and collation systems that are implemented. Simple forms and databases are all that is necessary, although the potential for a direct link into the WARD system could be explored.

The obvious problem with weapons registration is the potential reluctance of the local community to provide the necessary information. Assurances must be provided, and met, that the process of registration will not lead to immediate weapons seizures by security forces. Should this happen, the whole credibility of the micro-disarmament process will be lost and the entire programme will eventually be doomed. On the other hand, incentives can be provided to those who cooperate in the registration process to encourage the initial weapon registration phase.

A weapons registration phase provides the capability to; 1) establish the scale of the problem; 2) reduce the risk of those weapons being illegally used; 3) increases transparency; 4) allows for a degree of control to be exercised during the collection phase; 5) assists in the planning of the collection phase; 6) provides base data for one performance indicator and; 7) has the potential to limit illicit transfers.

#### 4.1.3 Physical Collection Activities

It is essential to have a local representative as part of the micro-disarmament team at every Weapons Collection Point (WCP). The local representative's duties will include liaison, translation, mobilisation of local resources and local media operations. Similarly a Technical Advisor (TA) must be present at every active WCP.

The physical layout of the WCP should be in accordance with the suggested template shown at **Annex H**.

#### 4.1.4 Media Awareness Activities

A professional media awareness campaign for the micro-disarmament programme should be conducted. It should illustrate the benefits of co-operation in weapons, ammunition and explosives surrender and the inherent dangers posed by the continued possession of weapons, ammunition and explosives. It should target those weapons and ammunition that are known to be physically present in the region. For example, it would be counterproductive for the campaign to use images of NATO type weapons, if the majority of weapons in the region are Kalishnikovs.

The media awareness campaign must be co-ordinated with the Mines / UXO media awareness campaign to ensure that there is no inferred dichotomy for the local population.

#### 4.1.5 Weapons and Explosive Safety

The organisation responsible for the implementation of a micro-disarmament programme must ensure that it fulfils its "Duty of Care" in terms of the explosive safety of the local civil population. This "Duty of Care" should be fulfilled by:

- ❑ Developing, printing and issuing Explosive Safety / Weapons Safety advisory cards for distribution to the local population in the targeted area.
- ❑ The deployment of a Technical Advisor (TA) to each Weapons Collection Point to:
  - (1) Advise on explosive safety during transportation and storage.
  - (2) Certify ammunition and explosives as "Safe to Move".
  - (3) Conduct Render Safe Procedures (RSP) on unsafe ammunition. This may include the breakdown of component parts; a task that TAs should be specifically authorised and qualified to undertake.

- (4) Advise on the accounting procedures for the recovered weapons, ammunition and explosives to ensure that there is an auditable trail.
- (5) Advise on “safe” danger areas during the collection process. A schematic layout for a Weapons Collection Point is enclosed.
- (6) Advise the local authority on the conduct of multi-item logistic disposal of recovered stocks of ammunition and explosives.
- (7) Recognise ammunition and its components either by positive identification or from first principles.
- (8) Provide technical advice to the media awareness campaign.

#### **4.1.6 Post Collection Storage**

There are well established principles<sup>8</sup> for the secure and safe storage of weapons, ammunition and explosives, which the TA should advise on. The security of collected SALW is, politically speaking, the primary concern. However, safety must be considered in parallel. An undesired explosive event in storage leading to civil casualties would have an immediate negative impact on the credibility of the whole process.

Physical security can be provided by one of three organisations, with the final decision being made after consideration of the political, financial and indigenous capability factors;

- The use of the indigenous military or police facilities.
- Commercial contractors.
- International military peacekeeping forces.

## **5 Destruction of Weapons**

### **5.1 General**

It has been recognised that the success of a micro-disarmament programme is directly related to the final disposal of the collected weapons and ammunition. Techniques for the destruction of ammunition and explosives are well documented in military destruction procedures, and will therefore not be considered further in this thesis.

The introduction of an immediate and systematic process for the destruction of recovered weapons will significantly contribute to prevent further proliferation. The continued presence of such weapons inevitably acts as a destabilising influence in the area and the potential for illicit trade remains. If the public perceives that the weapons that they had handed in were just being transferred elsewhere, either legally or illegally, then the essential public confidence in the programme would collapse. Again, the

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<sup>8</sup> For example the NATO AASTP-1 or UK Ammunition and Explosive Regulations (A&ERs). These both comply to the internationally accepted standards for the safe storage, transport and movement of ammunition and explosives.

principles of transparency, accountability, safety and control must be followed during the disposal process to ensure that the process is legitimised in the eyes of all stakeholders.

Previous micro-disarmament programmes have usually considered the final disposal of the recovered weapons on an ad hoc basis. The lack of available finance and resources during many programmes has hampered this final process of destruction. For example, in Mozambique, the weapons were placed initially under UN control, but only a limited number of weapons were destroyed and the “mission could do no more because it had no budget for destruction and no donor could be found to fund the programme”.<sup>9</sup> This is discouraging as; 1) there is a wide range of available destruction techniques and technologies and; 2) the required human and financial resources are not high in terms of the percentage costs of a full UN peacekeeping deployment.

There are, therefore, many good reasons why a final destruction process must be considered at the outset of any micro-disarmament project. Indeed, it could be argued that donors have a moral imperative to ensure that such a process is included in the project plan before funding is authorised. Provisions for destruction are as important to the success of a programme as the initial political will and recovery methodology.

## 5.2 Destruction Techniques and Technologies

The destruction technology or technique selected for a particular programme will be dependent on a number of factors:

- ❑ Type of Weapons.
- ❑ Quantity of Weapons.
- ❑ Available indigenous resources and technology.
- ❑ Financial considerations.
- ❑ Infrastructure for movement of weapons.
- ❑ Security constraints.
- ❑ Media awareness needs.
- ❑ Final disposal of the generated scrap

A summary of the currently available destruction techniques and technologies is at **Annex J** for reference. These vary widely in terms of cost and efficiency, but perhaps more importantly in terms of verification ability.

Whatever the destruction technique used, it is an essential part of the programme that a public ceremony with mass media coverage is an important component. Such a ceremony has tremendous symbolic power in helping the public develop confidence in

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<sup>9</sup> Workshop on Small Arms, 18 - 20 February 1999, Geneva, Herbert WULF, BICC.



the both the security and confidence building measures and the development of confidence in the peace building process.

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# Chapter 4

## Re-active Measures

### Performance Indicators

#### 1 Introduction

Performance indicators (PI) provide a useful management tool, not only in judging the technical success of a micro-disarmament programme, but they also provide information that assists in the making of management decisions during the programme. While they are not specifically related to the technical threat, they have been covered in this chapter because of their technical content. This section suggests different PI approaches that could be considered for use. Data processing power now allows one or all of these PIs to be used, although the major problem will, of course, be data capture. Notwithstanding this, most micro-disarmament programmes take place in countries that have a high presence of international organisations and NGOs, who can be used to assist in data capture.

Deciding on which PI to use, and whether or not to publicise them outside the micro-disarmament management team or donor community, will depend largely on the political situation within the target community. For example, a financial PI may give the impression that the programme is a “buy back” programme by another name and this is obviously undesirable, as there should be no direct linkage between donor infrastructure development and the number of weapons recovered. Notwithstanding this, it still gives the donor community an indication as to the success of an operation in financial terms, whether to continue support or not and when the collection phase of the programme should be completed.

#### 2. Recovery Statistics

This is the simplest PI, where the number of weapons recovered (by type) is compared against the estimated number of weapons present in the local community:

$$\text{Weapons Recovered (\%)} = \frac{\text{Quantity of Weapons Recovered}}{\text{Estimated Weapons in Community}} \times 100$$

This PI considers the least number of variables, but is only as accurate as the estimate of the physical number of weapons present in the target community. Other factors, such as the illegal inflow or outflow of weapons in the target community during the collection phase, will also impact on the accuracy of this approach.

### 3. Crime Statistics

One indication of the impact of a micro-disarmament programme on a target community is a comparison of the crime statistics in the area prior to, during and after completion of the weapons collection phase. Statistics should be kept for; 1) murders using weapons; 2) woundings as a result of weapons; 3) armed robbery; 4) illegal weapon found and; 5) illegal weapon sales. These can again be reported in percentage terms:

$$\text{Percentage Change (\%)} = \left(1 - \frac{\text{Current Crime Figures}}{\text{Previous Crime Figures}}\right) \times 100$$

This PI provides a good indication of the real impact of a collection programme on the target community, but is limited in that it does not give an indication of any intent of individuals in the community to use any weapons they may have in the future. It does however, provide an immediate and ongoing measure of success.

### 4 Economic Statistics

Simple supply and demand rules would suggest that the success of a micro-disarmament programme could be measured by an analysis of the street price of weapons in the target community and the adjoining regions.

$$\text{Percentage Change (\%)}^{10} = \left(1 - \frac{\text{Current Street Price}}{\text{Previous Street Price}}\right) \times 100$$

An increase in the street price would indicate an increasing scarcity of available weapons. This increasing scarcity is either being caused by the impact of the collection phase or by an outflow of weapons from the community into adjoining regions, (where a better price can be obtained for the dealer). Either way, it is an indicator that weapons are being removed from the target community, although it is difficult to know whether or not the problem is just been shifted elsewhere.

### 5 Financial Comparison

A more complicated approach is to compare the "cost" of recovering a weapon to the programme against the street price. The total costs of the programme, (operating costs and infrastructure development), divided by the number of weapons recovered gives an initial crude indicator of what it has cost to recover each individual weapon. If this is less than the street price, then perhaps this indicates a degree of success.

$$\text{Cost per Recovered Weapon (\$)} = \frac{\text{Total Cost of Programme (\$)}}{\text{Total Weapons Recovered}}$$

This PI will only be of value once the collection phase has reached a degree of maturity, as the first weapon collected will of course be very expensive. The cost-per-recovered-

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<sup>10</sup> If this percentage change is negative, it indicates an INCREASE in the Street Price.

weapon will fall as more are recovered, but will increase as more finance is committed to infrastructure development. Therefore, this PI should not be used as a management decision making tool until programme maturity, but the data should be loaded into the financial model throughout the programme. It will soon become apparent when this PI becomes an effective measure of success.

The approach can be made more sophisticated by comparing individual weapons against total costs. The mathematical model for this is complex with a number of variables and involves the management team in the continual substitution of figures in a spreadsheet model. The street price for a pistol will be different than for an assault rifle, therefore the PI model should also reflect this. If the difference is 40%, then the cost per recovered weapon should also vary by an equivalent percentage. The figures in the spreadsheet model should be continually altered to reflect this equivalent percentage.

The danger with both the simple and more sophisticated approaches is that it could give the impression that the programme is in essence a “buy back” programme by another name, and that there is a direct linkage between the amount of infrastructure development provided and the number of weapons that have been voluntarily surrendered.

This approach has technical limitations. For one thing, it doesn't reflect the intent of individuals in the target community to use any weapons they may have, nor does it take account of the “value” of recovered ammunition. In terms of ammunition value, this is not a major failing. Most recovered ammunition would be useless without the weapons; and if ammunition that can be regarded as a “self contained” weapon, (such as hand grenades and certain rocket launchers), is included in the model, then the validity of the approach will be enhanced.

## 6 Risk Rating

This PI allocates a risk rating to each individual weapon type based on previous and current weapon usage in the area:

$$\text{Risk Rating (Fatality)} = \frac{\text{Total Number of Fatalities}}{\text{Total Weapons used in Attacks}}$$

For example, if 26 fatalities had resulted from 100 AK47 attacks, then the Risk Rating for the AK47 would be 0.26.

$$\text{Risk Rating (Injury)} = \frac{\text{Total Number of Injuries}}{\text{Total Weapons used in Attacks}}$$

These risk ratings can be established for both the target community and the country as a whole. If the risk rating for each weapon recovered is multiplied by the number of weapons recovered, then it gives an indication of the potential number of lives saved by the micro-disarmament programme:

$$\text{Potential Lives Saved} = \text{Weapon Risk Rating} \times \text{Total Weapons Recovered}$$

It is then possible to make an estimate of the total potential number of lives saved by the addition of the results for each weapon type. Again, this methodology takes no account of the intent of the individuals to use the weapons in their possession, but is another crude indicator.

This methodology could then be further developed to establish the financial cost per life saved:

$$\text{Cost per Life Saved} = \frac{\text{Total Cost of Programme}}{\text{Total Potential Lives Saved}}$$

The ethics of comparing the cost of human life versus the number of weapons recovered can, and we are sure will be widely debated. It is not proposed that this figure would ever be available for public consumption, but the harsh reality of limited donor investment, when set against the number of communities in possession of weapons, means that some form of financial assessment should be available. It is up to the donors, programme management teams and national authorities to decide whether to use the model or not.

## 7 Conclusions

These proposed performance indicators will provide the donor community with an ongoing estimate of the success of a micro-disarmament operation. It will allow donors an opportunity to carefully target funding. In addition, the management team will have access to quantitative evidence as to the progress of their programme, thereby assisting their management decision making process.

It is not proposed that micro-disarmament programmes should be compared against one another using these PIs. There are too many influencing variables that render such a comparative approach invalid in terms of comparing success and learning lessons.

These proposed PIs are only intended for use as an indicative quantitative tool for measuring success. It must be remembered that they do not take into account the intent of the population who possess weapons, the political situation, or the overall economic situation. They are only indicators and should not be used as the definitive tool for the measurement of success.

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# Annex A

## Definitions and Terminology

### A.1 Buy Back

“The direct linkage between the surrender of weapons, ammunition, and explosives in return for cash”<sup>11</sup>

Note: Buy Back schemes have been practised in the past, but the concept is often unacceptable to international donors. There is a perception that such schemes reward irresponsible armed personnel who may have already harmed society and the innocent civilian population. They also provide the opportunity for an individual to conduct low level trading in SALW.

### A.2 Demobilisation

“The process by which armed forces (government and/or opposition or factional forces) either downsize or completely disband, as part of a broader transformation from war to peace”.<sup>12</sup>

Note: Typically, demobilisation involves the assembly, quartering, disarmament, administration and discharge of former combatants, who may receive some form of compensation to encourage their transition to civilian life.

### A.3 Demilitarisation

“The complete range of processes that render weapons, ammunition and explosives unfit for their originally intended purpose”.<sup>13</sup>

Note: Demilitarisation not only involves the final destruction process, but also includes all of the other transport, storage, accounting and pre-processing operations that are equally as critical to achieving the final result. The “UN Stockpile Destruction Guidelines for Anti-personnel Landmines”, (UNDP, June 2000), explains the demilitarisation cycle in detail, and explains the various processes that it contains.

### A.4 Destruction

“The process of final conversion of weapons, ammunition and explosives into an inert state that can no longer function as designed”.

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<sup>11</sup> Micro-disarmament programmes have also offered food, housing, construction materials or any other tangible benefits in return for the surrender of SALW. These are not considered to be Buy Back programmes as the potential for trading is significantly lower.

<sup>12</sup> Disarmament, Demobilisation and Re-integration of Ex-combatants in a Peacekeeping Environment, UNDPKO, December 1999.

<sup>13</sup> Definition from NATO Maintenance and Supply Agency (NAMSA), Peter Courtney-Green, May 2000.

## A.5 Disarmament

“The collection, control and disposal of small arms, ammunition, explosives, light and heavy weapons of combatants and often also of the civilian population. It includes the development of responsible arms management programmes”.<sup>14</sup>

## A.6 Disposal (Logistic)

The removal of ammunition and explosives from a stockpile by the utilisation of a variety of methods, (that may not necessarily involve destruction). Logistic disposal may or may not require the use of Render Safe Procedures.

Note: There are five traditional methods of disposal used by armed forces around the world, some of which are obviously not suitable for micro-disarmament programmes. These are; 1) sale; 2) gift; 3) increased use at training; 4) deep sea dumping; and 5) destruction or demilitarisation.<sup>15</sup>

## A.7 Explosive Ordnance Disposal (EOD)

“The detection, identification, evaluation, render safe, recovery and final disposal of unexploded explosive ordnance. It may also include the rendering-safe and/or disposal of such explosive ordnance, which have become hazardous by damage or deterioration, when the disposal of such explosive ordnance is beyond the capabilities of those personnel normally assigned the responsibility for routine disposal”.<sup>16</sup>

Note: The presence of ammunition and explosives during micro-disarmament operations will inevitably require some degree of EOD response. The level of this response will be dictated by the condition of the ammunition, its level of deterioration and the way that it is handled by the local community. This response is explained in detail in Chapter 5 - The Technical Threat and an Appropriate Response.

## A.8 Micro-disarmament

“The monitoring, collection, control and final disposal of small arms, related ammunition and explosives and light weapons of combatants and often also of the civilian population. It includes the development of responsible arms management programmes”.

Note: **Boutras Boutras-Ghali**, the former Secretary General of the United Nations proposed an initial definition<sup>17</sup>, which can now be superseded by the more practical definition above:

*“... practical disarmament in the context of the conflicts that the United Nations is actually dealing with, and of the weapons, most of them light weapons, that are actually killing people in the hundreds of thousands.”*

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<sup>14</sup> Disarmament, Demobilisation and Re-integration of Ex-combatants in a Peacekeeping Environment, UNDPKO, December 1999.

<sup>15</sup> This is an obvious area where confusion can be caused due to the use of incorrect terminology or translation. One party may assume that when the other mentions disposal they are really talking about destruction. This may not be the case!

<sup>16</sup> UN Guidelines for Stockpile Destruction, June 2000.

<sup>17</sup> 1995 Supplement to Agenda for Peace.

## A.9 Small Arms and Light Weapons (SALW) <sup>18</sup>

Note: There are a variety of definitions for SALW circulating and international consensus on a “correct” definition has yet to be agreed. For the purposes of this thesis the following definition will be used:

*“All lethal conventional munitions that can be carried by an individual combatant or a light vehicle, that also do not require a substantial logistic and maintenance capability”*

## A.10 Reintegration

“Assistance measures provided to former combatants that would increase the potential for their and their families’ economic and social reintegration into civil society”. <sup>19</sup>

Note: Reintegration programmes could include cash assistance, or compensation in kind, as well as vocational training, income generating activities and participation in sustainable development programmes.

## A.11 Render Safe Procedure (RSP)

“The application of special explosive ordnance disposal methods and tools to provide for the interruption of functions or separation of essential components to prevent an unacceptable detonation”. <sup>20</sup>

## A.12 Unexploded Ordnance (UXO)

“Explosive ordnance which has been primed, fuzed, armed or otherwise prepared for action, and which has been dropped, fired, 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”. <sup>21</sup>

Note: The distinction between anti-personnel mine (APM) and UXO should be explained at this stage. UXO, by definition, is ammunition that has failed to function as intended yet still presents a dangerous hazard to individuals. In contrast, APM are a (generally) hidden explosive danger waiting to be initiated by the victim. They have not yet failed and therefore can not be defined as UXO, although similar techniques are required to render them safe.

## A.13 Voluntary Surrender

“The physical return by an individual(s) or community of small arms and light weapons to the legal government or an international organisation with no further penalty”.

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<sup>18</sup> Examples of SALW include pistols, rifles, assault rifles, machine guns, light support weapons, grenade launchers, cannon (>37mm), light mortars, light anti-tank weapons, shoulder launched surface to air missiles (SAM), high explosive (HE) grenades, anti-personnel mines (APM), anti-tank mines (A/Tk) and small arms ammunition (SAA).

<sup>19</sup> Disarmament, Demobilisation and Re-integration of Ex-combatants in a Peacekeeping Environment, UNDPKO, December 1999.

<sup>20</sup> NATO Definition.

<sup>21</sup> NATO Definition.



#### **A.14 Weapons in Exchange for Development**

“The indirect linkage between the voluntary surrender of small arms and light weapons by the community as a whole in exchange for the provision of sustainable infrastructure development by the legal government, an international organisation or NGO”.

## Annex B

### Information Gathering

### “The Collection Plan”

The development of a successful collection plan is dependent on the imagination and experience of the author, combined with the availability of intelligence sources. This is an example collection plan, which can be developed in line with the particular requirements of an operational scenario.

SER	QUESTION	OPEN SOURCES		HUMINT					CONTACT INFO		TECHNICAL MEANS			ECONOMIC		LIAISON			
		Media	Specialist Journals	Civil Authorities	Civilians	Journalists	Refugees	Informants	International Monitors	UN Staff	IMINT	SIGINT	ELINT	Production Capability	Declared Arms Shipments	Embassies and Attachés	Deployed Military Force	International Observers	Community Leaders
1	Where are the warring factions?	X		X	X	X	X	X	X	X		X					X	X	X
2	Known Supply Routes?			X	X	X	X	X	X			X					X	X	X
3	Faction's SALW Needs?	X	X	X		X		X	X	X		X				X	X	X	X
4	Movements of Known Couriers?			X			X	X				X	X				X	X	X
5	Status of Known Stockpiles?	X	X	X	X	X	X	X	X	X	X					X	X	X	X

SER	QUESTION	OPEN SOURCES		HUMINT					CONTACT INFO		TECHNICAL MEANS			ECONOMIC		LIAISON			
		Media	Specialist Journals	Civil Authorities	Civilians	Journalists	Refugees	Informants	International Monitors	UN Staff	IMINT	SIGINT	ELINT	Production Capability	Declared Arms Shipments	Embassies and Attachés	Deployed Military Force	International Observers	Community Leaders
6	New Building Activity?			X	X	X	X	X	X	X	X					X	X	X	X
7	Weapons Contracts?	X	X	X				X	X	X		X			X	X			
8	Ammo Thefts?	X		X	X	X		X	X	X		X				X	X	X	X
9	Weapon Thefts?	X		X	X	X		X	X	X		X				X	X	X	X
10	Refugee Reports?			X		X			X	X	X	X					X	X	
11	Factions' Public Statements?	X				X		X	X	X		X				X	X	X	X

## Annex C

# Information Gathering

## Key Sources and Agencies

### C.1 Open Sources

- ❑ Press. Local, National, World.
- ❑ Maps, town plans, charts, guide books, telephone directories
- ❑ Voting registers
- ❑ Radio broadcasts and TV.
- ❑ Scientific journals and periodicals
- ❑ Trade journals
- ❑ Reference books
- ❑ Annual reports of companies

### C.2 Human Information (HUMINT)

- ❑ Civil Authorities or Agencies
- ❑ Civilians
- ❑ Policemen
- ❑ Journalists
- ❑ Defectors
- ❑ Refugees
- ❑ Informants.
- ❑ Debriefing
- ❑ Documents acquired.

### **C.3 Contact Information**

- ❑ Forward observers or patrols in contact .
- ❑ Visual reconnaissance.
- ❑ Other observers such as aircraft, helicopters, etc

### **C.4 Imagery Information (IMINT)**

- ❑ Imagery from photo reconnaissance aircraft
- ❑ Drones, Unmanned Aerial Vehicles (UAVs).
- ❑ Satellite imagery
- ❑ Tasked photo shoots.

### **C.5 Signals Information (SIGINT)**

- ❑ Direction finding
- ❑ Interception of radio broadcasts or transmissions
- ❑ Analysis of radio traffic, timings and patterns.
- ❑ Code breaking

### **C.6 Electronic Information (ELINT)**

- ❑ Analysis of the electromagnetic spectrum.

### **C.7 Commercial and Economic Intelligence**

- ❑ Manufacturing and production capabilities.
- ❑ Arms shipments or sales.
- ❑ Commercial contracts
- ❑ Movement of goods.
- ❑ Cash flows/banks.

### **C.8 Liaison Intelligence**

- ❑ Information from bordering States,
- ❑ Deployed military peacekeeping, peace monitoring or peace support forces
- ❑ Well disposed Embassies or Attachés.

- International observers and monitors. (ECCM, OSCE etc).

Obviously the programme manager of a UN micro-disarmament programme will not have access to all of the above assets. The programme manager will certainly not have access to imagery information (IMINT), signals information (SIGINT) or electronic information (ELINT). However any deployed military peace support formations may have access to such information, and the programme manager may consider requesting their assistance. It must, however, be made clearly to these forces, that information provided will certainly be treated as “Unclassified” by the international organisations. This is an important factor, that will often restrict access to potentially useful information.

## Annex D

# General Safety Policy

The micro-disarmament operation team should be committed to achieving the highest performance in occupational health and safety with the aim of creating and maintaining a safe and healthy working environment throughout its operations.

In order to ensure general safety during a the micro-disarmament programme the general safety principles below should be followed:

- ❑ **Decision-Making:** Environmental, health and safety concerns are an integral part of the team's decision-making. All strategic and operational decision-making will take into account environmental, health and safety implications.
- ❑ **Compliance:** The team will comply with all environmental, health and safety laws and regulations. Environmental, health and safety programs will be established and maintained. Audits will be conducted to assess compliance with laws and regulations as well as these principles.
- ❑ **Operational Practices:** The team will use internal procedures and adopt practices or other operating guidelines toward the goal of protecting the environment, as well as, the health and safety of our employees and the public.
- ❑ **Emergency Preparedness:** The team will maintain emergency response procedures to minimise the effect of accidents as well as to enhance, maintain and review procedures to prevent such occurrences.
- ❑ **Reduction of Pollution:** The team will develop, maintain, and review explosive waste management programmes. These programmes will address the source and nature of wastes generated and, to the extent technically and economically feasible, methods to reduce the generation of these wastes.
- ❑ **Conservation of Resources:** The team will enhance, maintain and review guidelines for the efficient production and use of energy and natural resources.
- ❑ **Legislative/Regulatory Development:** The team will participate, as appropriate, with legislative and regulatory bodies in creating responsible laws, regulations and standards to safeguard the community, workplace and the environment.
- ❑ **Research and Development:** The team will support research and development toward the goal of environmental, health and safety improvement and excellence.

- ❑ **Communication with Employees and Local Population:** The team will promote among its employees an individual and collective sense of responsibility for the preservation of the environment and protection of health and safety of individuals.
- ❑ **Communication with the Public:** The team will communicate its environmental, health and safety commitment and achievements to the public and shall recognise and respond to community concerns.
- ❑ **Measurement of Performance:** The team will continue to develop and enhance methods to measure both current and future environmental, health and safety performance in meeting these principles.
- ❑ **Risk Management:** The team will manage risk by implementing management systems to identify, assess, monitor and control hazards and by reviewing performance.



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# Annex E

## Quality Policy

***"Say what you do, do what you say and prove it."***

In order to ensure control and transparency during micro-disarmament programmes it is essential that the following general quality principles are followed:

- ❑ Clearly determine the needs and expectations of the local national authorities and civil population.
- ❑ Ensure the continued development of an enthusiastic commitment to quality within the micro-disarmament programme operations team.
- ❑ Develop a philosophy within the Team that promotes and maximises the satisfaction of the local national authorities and civil population.
- ❑ Continually review the needs of the local national authority and civil population against the performance of the team in order to identify opportunities for continual improvement.
- ❑ The adoption of a team approach to improvement activities to ensure long-term viability, transparency and sustainability through instituting quality operational practices.

To assist in fulfilling these objectives, the policy must be to maintain a comprehensive and practical quality management system, based on total local national authority and civil population satisfaction and continuous assessment and improvement of operational practices.

The primary operational goals shall be realised through personal commitment to the teams quality policy and management system.

## Annex F

### Terms of Reference

### Technical Advisor (TA)

The Technical Advisor (TA) to the micro-disarmament programme is responsible to the programme manager for the following:

- ❑ Provision of independent technical advice on weapons, ammunition and explosives.
- ❑ Assessment of the quality and condition of recovered weapons, ammunition and explosives.
- ❑ The render safe of unstable ammunition and explosives, where there is an immediate and direct risk to the civil population or Weapons Recovery / Amnesty Programme Team..
- ❑ The development of written procedures and advice to ensure that the civilian population store recovered weapons, ammunition and explosives in as safe a manner as technically possible.
- ❑ The development of written procedures and advice to ensure that the civilian population transport recovered weapons, ammunition and explosives in as safe a manner as technically possible.
- ❑ Act as the security liaison officer for the Weapons Recovery / Amnesty Programme.
- ❑ The continuing development of the WARD Matrix. This system attempts to assess the risk to human life by individual weapons systems. Each system is rated on a scale of 0 - 1 in terms of its effectiveness. This rating can be refined as more intelligence is gained from other sources. When this rating is combined with the cost to the donor of recovering each type of weapon, an Initial Performance Indicator (PI) can be produced.
- ❑ The continuing development of the WARD matrix in order to assess and improve the accuracy of the "Risk Rating".
- ❑ The technical advisor should develop plans that cover the following:
  - Team security.
  - Security of recovered weapons, ammunition and explosives, including during transport, storage, and destruction.

- Security of information
  - The provision of technical intelligence to the micro-disarmament team in order that informed management decisions may be taken.
  - Participate in public information dissemination programmes.
  - Put in place quality control measures.

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# Annex G

## Qualifications And Experience

### Technical Advisor (TA)

#### 1. General

A suitable candidate for the appointment of Technical Advisor (TA) requires specific experience and qualifications, which are listed below. The appointment would particularly suit ex-military personnel qualified in explosive ordnance disposal (EOD), explosive engineering and ammunition technology, although other candidates with the necessary operational experience and qualifications would be considered:

#### 2. EOD Operational Experience.

The candidate must have had extensive operational EOD experience in order to have credibility with the local national authority:

#### 3. Other Requirements.

The candidate should have had extensive formal training and be qualified and experienced in the following:

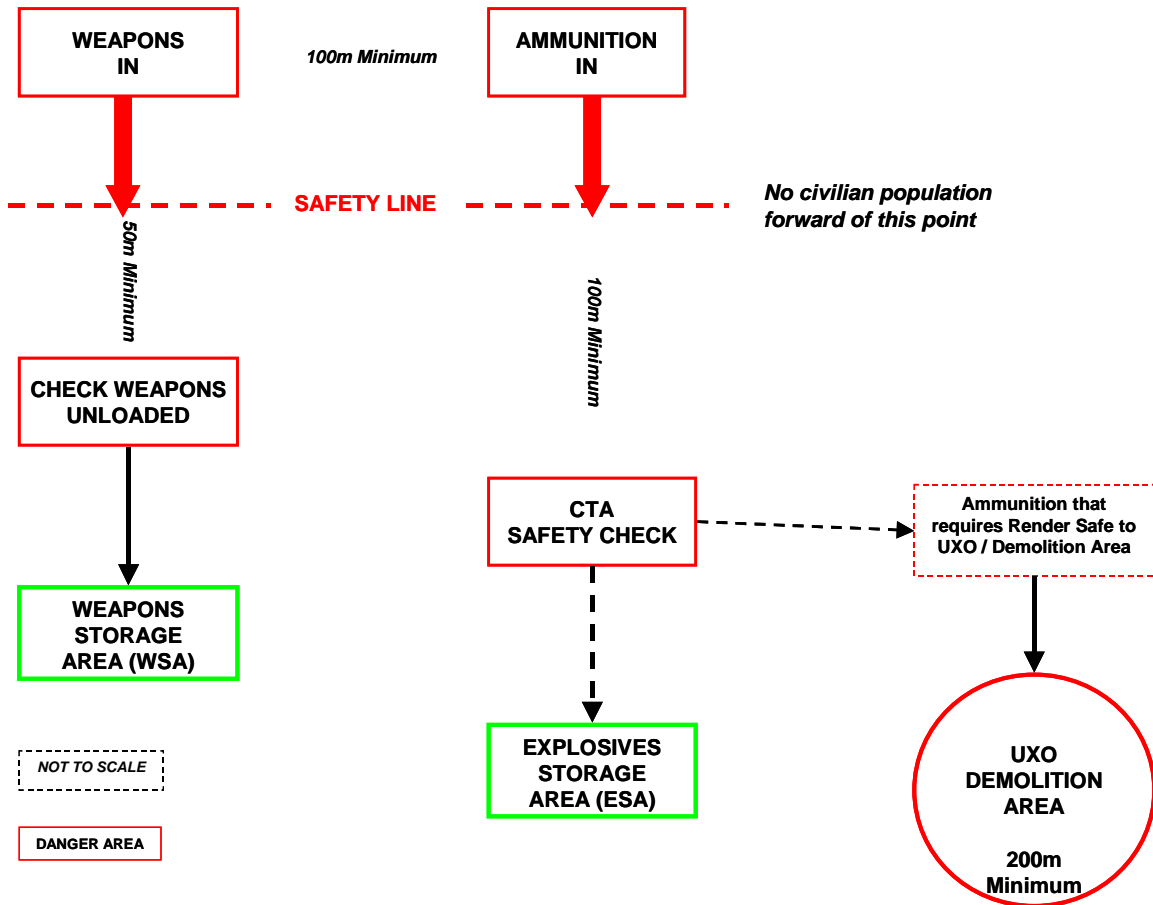
- Ammunition Storage (Field and Depot).
- Ammunition Inspection and Repair.
- Ammunition Maintenance.
- Unit Ammunition Inspections.
- BCMD.
- Computer literate and ideally, self-sufficient with own laptop and printer.

#### 4. Weapons Staff Experience.

It would be advantageous if the candidate had weapons staff experience, or had formal academic qualifications in chemistry, explosive ordnance engineering or similar subjects.

# Annex H

## Schematic Layout of Weapons Collection Point



## ANNEX J

# Current Destruction Techniques And Technologies

SER	TECHNIQUE / TECHNOLOGY	EXPLANATION	EXAMPLE COUNTRY	ADVANTAGES	DISADVANTAGES
(a)	(b)	(c)	(d)	(e)	(f)
1	<b>Bandsaw</b>	The use of industrial band saws to cut SALW into unusable pieces.		<input type="checkbox"/> Limited training. <input type="checkbox"/> Simple.	<input type="checkbox"/> Labour intensive. <input type="checkbox"/> Minimum of 3 cuts per weapon, dependent on type. <input type="checkbox"/> Inefficient.
2	<b>Burning</b>	The destruction of SALW by Open Burning using Kerosene.	Mali Nicaragua	<input type="checkbox"/> Cheap and Simple. <input type="checkbox"/> Highly visible and symbolic. <input type="checkbox"/> Limited training requirements.	<input type="checkbox"/> Labour intensive. <input type="checkbox"/> Environmental pollution. <input type="checkbox"/> Not particularly efficient. <input type="checkbox"/> Visual inspection essential, but difficult.
3	<b>Cement</b>	Cast weapons into cement blocks.		<input type="checkbox"/> Cheap and simple. <input type="checkbox"/> Limited training.	<input type="checkbox"/> Recovery possible, but very labour intensive to achieve. <input type="checkbox"/> High landfill requirements. <input type="checkbox"/> High transport requirements to landfill. <input type="checkbox"/> Final accounting difficult.
4	<b>Crushing by Armoured Fighting Vehicles (AFV)</b>	The use of AFVs to run over and crush the SALW.	Yugoslavia	<input type="checkbox"/> Cheap and Simple. <input type="checkbox"/> Highly visible and symbolic. <input type="checkbox"/> Limited training requirements.	<input type="checkbox"/> Not particularly efficient. <input type="checkbox"/> Visual inspection essential.

SER	TECHNIQUE / TECHNOLOGY	EXPLANATION	EXAMPLE COUNTRY	ADVANTAGES	DISADVANTAGES
(a)	(b)	(c)	(d)	(e)	(f)
5	<b>Cutting by Oxy-acetylene or Plasma</b>	The use of high temperature cutting technology to render the SALW inoperable.		<input type="checkbox"/> Established and proven method. <input type="checkbox"/> Cheap and Simple. <input type="checkbox"/> Limited training requirements. <input type="checkbox"/> Equipment available worldwide. <input type="checkbox"/> Maintenance free.	<input type="checkbox"/> Labour intensive. (One operative can process 40 weapons per hour). <input type="checkbox"/> Risk of small functioning components (Bolts etc) not being destroyed.
6	<b>Cutting using Hydro Abrasive technology</b>	The use of hydro abrasive cutting technology.		<input type="checkbox"/> Limited training requirements. <input type="checkbox"/> Technology readily available. <input type="checkbox"/> High production levels possible using automation. <input type="checkbox"/> Environmentally benign.	<input type="checkbox"/> Medium initial capital costs. <input type="checkbox"/> Equipment requires transporting to affected country.
7	<b>Cutting by Hydraulic Shears</b>	The use of hydraulic cutting and crushing systems.	Australia Canada South Africa	<input type="checkbox"/> Limited training requirements. <input type="checkbox"/> Technology readily available. <input type="checkbox"/> High production levels possible using automation. <input type="checkbox"/> Environmentally benign.	<input type="checkbox"/> Medium initial capital costs. <input type="checkbox"/> Equipment requires transporting to affected country.
8	<b>Deep Sea Dumping</b>	The dumping at sea in deep ocean trenches of SALW.		<input type="checkbox"/> Traditional technique. <input type="checkbox"/> Efficient.	<input type="checkbox"/> Constraints of Oslo Convention. <input type="checkbox"/> More environmentally benign than many other techniques.
9	<b>Detonation</b>	The destruction of SALW by detonation using donor high explosives.		<input type="checkbox"/> Highly visible and symbolic. <input type="checkbox"/> Destruction guaranteed if sufficient donor explosive used.	<input type="checkbox"/> Labour intensive. <input type="checkbox"/> Environmental pollution. <input type="checkbox"/> Requires highly trained personnel. <input type="checkbox"/> Expensive in terms of donor explosive.
10	<b>Dismantling and Recycling</b>	The use of industrial process to dismantle and then recover raw materials.	Germany	<input type="checkbox"/> Destruction guaranteed. <input type="checkbox"/> Some costs recovered by sale of scrap. <input type="checkbox"/> High maintenance requirements.	<input type="checkbox"/> High initial capital costs to develop facility. <input type="checkbox"/> Only cost effective for large quantities of SALW in developed countries.

SER	TECHNIQUE / TECHNOLOGY	EXPLANATION	EXAMPLE COUNTRY	ADVANTAGES	DISADVANTAGES
(a)	(b)	(c)	(d)	(e)	(f)
11	<b>Shredding</b>	The use of industrial metal shredding technology.	Australia Canada	<input type="checkbox"/> Highly efficient. <input type="checkbox"/> Limited training requirements. <input type="checkbox"/> Technology readily available. <input type="checkbox"/> High production levels possible using automation. <input type="checkbox"/> Environmentally benign.	<input type="checkbox"/> High initial capital costs. <input type="checkbox"/> Equipment requires transporting to affected country.
12	<b>Safe Storage</b>	The storage of recovered weapons in secure accommodation.	Albania	<input type="checkbox"/> Cheap and simple. <input type="checkbox"/> SALW move under direct control of national government or international organisation.	<input type="checkbox"/> Potential for proliferation in the future exists if there is a significant political change of circumstances.





## Annex J

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# Annex K

## The Authors

### John HUGHES-WILSON

#### *Author and Broadcaster*

Following an extensive career in military intelligence, John Hughes-Wilson retired from the Army in 1994 as a Colonel on NATO's International Political Staff in Brussels. His Army career started as an infantry officer and subsequently involved a variety of command and staff appointments, including UNFICYP in 1974/5, J2 for the Falklands Mine Clearance in 1982. He has had numerous postings associated with both the UK and NATO Intelligence and Special Forces, as well as Senior British Intelligence Officer in Supreme Headquarters Europe and an Arms Control Verification officer for the NATO political staff.

He is the presenter of a major BBC television historical series and a full time author and broadcaster specialising in military-historical and intelligence matters. Author of the best selling "Military Intelligence Blunders", he is the co-author of "Blindfold and Alone" and co-editor of with American, Russian, Indian, Israeli and Chinese experts of "*Nuclear Strategy for the 21st Century.*"

He is a Fellow of the Royal United Services Institute, Whitehall and visiting lecturer at a number of major Universities and International Corporations. He has recently been nominated as an Archives Fellow at Churchill College Cambridge.

### Adrian WILKINSON MBE, MSc, MIExpE

Adrian Wilkinson is currently Head of Technology and Standards at the Geneva International Centre for Humanitarian Demining (GICHD), but has completed this work as part of his part time Master of Arts degree in International Conflict Analysis at the University of Kent, Canterbury, England.

His academic training includes a Master of Science (MSc) degree in Explosive Ordnance Engineering from Cranfield University. Additionally he trained and qualified as an Ammunition Technical Officer (ATO) in the British Army in 1987, after which he filled a wide range of technical and command appointments.

His background in Explosive Ordnance Disposal (EOD) includes operational tours in Northern Ireland, Europe, Kuwait, Falklands (Malvinas) and Albania. It was during his time in Albania as the Operations Officer of the NATO EOD advisory team to the Government of Albania that he developed the initial phases of the micro-disarmament technical methodology contained within this paper.