ASM Example

GUIDANCE

PROCESS  ORGANISATION  RESOURCE

COMPETENCE
AMMUNITION SAFETY MANAGEMENT TOOL KIT

An Update

John Rawson
Advisor
Ammunition Safety Management
GICHD
SITUATION

1. Large volume of unmanaged ammunition stocks

2. Two or three significant stockpile accidents per month

3. Due to multiple factors, all of which are preventable by good ammunition safety management

4. Current standards in IATG too advanced for developing regions to implement in one go

5. Many opportunities to improve
DIRECTION

AIM:
Protecting vulnerable communities from explosive hazards using low cost, low technology methods

OBJECTIVES:
1. Develop a risk based process
2. Break down into stages
3. Collaborate / integrate with existing initiatives
4. Make openly available
STAGES

STAGE 1. MAKE SAFE
Find, salvage and make safe, or destroy AXO, develop & move to temporary field storage.

STAGE 2. FIELD MANAGE
Field manage salvaged AXO in temporarily field store.
Note: Existing, unmanaged storage site can enter at this point.

STAGE 3. PERMANENT STORE
Prepare & Populate Regional Permanent Storage Sites & Manage toward IATG Compliance.

Diagram:
- Local STM UXO
- Local AXO
- Unused Stocks UXO
- Inspected Managed
- Temp. Field Store
- Secured Recorded
- Temp. Field Store
- Temp. Field Store
- IATG Standard
- Perm. Regional Store
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Ammunition Safety Management Guidance Manual

Comprehensive manual providing:
User friendly translatable manual

Contents to include:

• ASM Overview
• ASM Process Guidance
• ASM Stage Guidance
• ASM Task Guidance
• ASM Action Guidance
• Using ASM Resources
• Gaining ASM Competence
ASM Example

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# ASM Example Process

<table>
<thead>
<tr>
<th>Process 1</th>
<th>Process 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abandoned Explosive Ordnance (AXO) Unexploded Ordnance (UXO)</td>
<td>Unmanaged Stores</td>
</tr>
<tr>
<td>Stage 1: Make Safe</td>
<td>Stage 1: Assess and Plan</td>
</tr>
<tr>
<td>Stage 2: Manage Ammunition</td>
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<tr>
<td>Stage 3: Permanent Store</td>
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</table>
ACTIONS IF UNSAFE AMMUNITION IS DISCOVERED AT ANY STAGE.

If any ammunition is found to be unsafe during any stage stop work, move personnel to safety and carry out a risk assessment to decide how to deal with it or, if specific instructions for that item are available, follow the instruction. If danger is immediate retire to a safe distance to consider. Refer up to next level in chain of command if unsure what to do or unqualified to take actions. Notify HQ.

AXIOM/UXO STAGE 1 – A1 FIND AND ASSESS

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A1.1 Locate ammunition!

- Use sketch map (if available)
- Conduct original reporter
- Search 50m around GPS point
- Fill report as nothing found
- Form still has to be completed and submitted to remove the report from the to do list

A1.2 Inspect and assess the condition of the ammunition!

- Are safety devices present? !
- Primer clip on base of cartridge case, safety pins in grenades, fuze cover on etc.
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- Smoke ammunition; burning signs around emission holes
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- Is the fuze crushed/broken/missing? !
- Check the whole item paying particular attention to joints, eg where the fuze attaches to the body; any leaking exudation? !
- Powder or crystals could also be present, again indicating chemical breakdown!
- Is any of the explosive filling exposed? !
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- Are all components present/ intact? !
- Check that fly off lavers are not missing, augmenting cart are there, tail fins are present and complete etc !
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If in container!

- Visually check the container, Look for signs of tampering/ interference. If unsafe at any stage follow the ACTIONS IF UNSAFE AMMUNITION IS DISCOVERED AT ANY STAGE.
- Open container & carefully check the contents, if safe, empty the contents by hand looking for the same signs as the visual inspection for ammunition above !
- It contents are the same as the markings on the box: repairs and mark box with quantity !
- It contents are different: sort out into types of ammunition, rebos with others of the same type. Mark the box with contents list !

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EXAMPLE: STAGE 1 - TASK & ACTIONS

A1 FIND & ASSESS

- Record, Mark & Report
  - Yes: Ammunition Found
    - No: Record & Report
      - No further action required

- No: Ammunition Found
  - Yes: Record & Report
    - No: No further action required

A2 SALVAGE OR DESTROY

- Ammunition Safe?
  - Yes: Ammunition Complete
    - Yes: Update Records & Report
    - No: Ammunition Complete
      - Yes: Can it be Made Safe / Repaired?
        - Yes: Destroy In situ?
          - Yes: Conduct HIRA, Mitigate Risk, Tamp & Destroy
          - No: Conduct HIRA, Mitigate Risk, Remove to Safe Area & Destroy
        - No: Conduct HIRA, Mitigate Risk, Remove to Safe Area & Destroy
      - No: Ammunition Complete
        - Yes: Update Records & Report
        - No: No further action required

- No: Ammunition Safe
  - Yes: Can it be Made Safe / Repaired?
    - Yes: Destroy In situ?
      - Yes: Conduct HIRA, Mitigate Risk, Tamp & Destroy
      - No: Conduct HIRA, Mitigate Risk, Remove to Safe Area & Destroy
    - No: Conduct HIRA, Mitigate Risk, Remove to Safe Area & Destroy
  - No: No further action required
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PROCESS

ORGANISATION

RESOURCE

COMPETENCE
Each function identified has a specific and integrated set of responsibilities linked to process & competence.

The functional organisation is designed to expand and contract as required maximizing the use of local labour.

The majority of the permanent functions can be regionally based and move to site as required; this provides a flexible management structure that is cost effective and scalable to needs.
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COMPETENCE
ASM Example Resources

All resources support the core functions from three perspectives:
- Operations
- Education and
- Training

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**CLEARANCE OF AMMUNITION AND EXPLOSIVES**

**Date/Time:** 22/04/2013 09:00

**Location:** East end of Broad Street, Monham

**Operator:** ATP Unit 1

**Team:** J. Broggs

**Task:** A1

**AMM:**

- Education
- AMM
- Unit
- 22/04/2013

**Site:**

- Approx. 1 x 8th HE Mortar Rounds, packed in poor condition
- Petrol

**Items Found:**

- 22/04/2013
- 8th HE Mortar
- Recovered
- Moving and Destroyed

**Items Actioned:**

- Destroyed in situ
- Recovered for disposal

**Signed:** J. Broggs

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**AXOUXO STAGE 1 – A1 FIND AND ASSESS**

**AXO/UXO STAGE 1 – A1 FIND AND ASSESS**

**Actions:**
- **Unsure Ammunition is Discovered at Any Stage:**
  - If any persons are found to be unsure of any stage, they must notify the supervisor. It is estimated by the supervisor if it is a little over a 100% complete. Better up to next level in place is required by doing what to handle.

**Items Found and Actioned:**

- **Ammunition Found:**
  - HE
  - Recovered
  - Moving and Destroyed

**Signed:** J. Broggs
ASM Example Competence

ASM Competency Matrix & Modular Training Program

Example Ammunition Trained Person Course Module 1 – A1 Find & Assess

<table>
<thead>
<tr>
<th>ID</th>
<th>Action</th>
<th>Competency</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1.1</td>
<td>Locate Ammunition</td>
<td>Element 1. Ammunition Recognition: At the end of this element the candidate</td>
<td>Task based demonstration of ability to recognize basic ammunition types and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>will be able to recognize basic ammunition types and groups and describe</td>
<td>groups and describe their characteristics including lethal radius.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Element 2. Sketch Map: At the end of this element the candidate will be</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>able to prepare accurate sketch maps using GPS and/or compasses, map and</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>note book.</td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

ATP Module 1 Make Safe – Unit A1 Locate Ammunition

Learner Group: Candidate Ammunition Trained Persons

Duration: 2 Days

Aim of Module: To incrementally develop the knowledge, skills and behaviours in order to safely and effectively manage the location of abandoned and/or unexploded ammunition.

Outcomes of the unit of learning: (there is one outcome for each lesson in the unit).
1. Describe the major categories of ammunition, their characteristics and lethal radius
2. Demonstrate the methods of searching for ammunition as an individual and as a group
3. Describe effective approach and recording of ammunition finds
4. Demonstrate effective marking of the find and communications with locals regarding inherent risks

Outline Module Program:

<table>
<thead>
<tr>
<th>Session</th>
<th>ID</th>
<th>Duration</th>
<th>Title</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A1.1</td>
<td>30 mins</td>
<td>Unit A1 Introduction</td>
<td>Attendance Register &amp; Administration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Safety Briefing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Program outline</td>
</tr>
</tbody>
</table>
APPRAOCH

1. Bridge implementation gap

2. Risk based

3. Local implementation

4. Entry at any stage
   (Possible APMBC / CCM / CCW integration)

5. Systems integration
   (Possible CCW/IMSMA integration)
## ASM PREDICTED EFFECT

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>PEOPLE</th>
<th>ENVIRONMENT</th>
<th>INFRASTRUCTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LIKELIHOOD</strong></td>
<td><strong>A V. UNLIKELY</strong></td>
<td><strong>B UNLIKELY</strong></td>
<td><strong>C POSSIBLE</strong></td>
</tr>
<tr>
<td><strong>1 NEGLIGIBLE</strong></td>
<td>Minor injury to one or a few people requiring minor medical attention</td>
<td>Minor isolated, very low volume release or discharge with no further pollution controls required, natural dissipation with no tangible impacts</td>
<td>Insignificant marking of land or structures, no tangible damage (E.G. item of UXO destroyed in situ well away from structures).</td>
</tr>
<tr>
<td><strong>2 MODERATE</strong></td>
<td>Individual casualty with injuries requiring local treatment and no long term disability</td>
<td>Pollution of land or water requiring local treatment with no long term impact, further pollution would have caused long term damage</td>
<td>Damage to isolated individual items of infrastructure repaired with local resources and with no long term impact.</td>
</tr>
<tr>
<td><strong>3 SIGNIFICANT</strong></td>
<td>Casualty with serious injuries requiring hospitalization and long-term rehabilitation i.e. loss of fingers, damaged eyesight, damage to feet / loss of toes.</td>
<td>Pollution of land and/or water sources rendering land or water un-useable during a crop rotation. Denial of access to useable land for less than a calendar year. Denial of a water source requiring specialist assistance to treat the impact</td>
<td>Destruction of the local built environment resulting in a partially reduced public service / transport supply line.</td>
</tr>
<tr>
<td><strong>4 SEVERE</strong></td>
<td>Multiple serious injured and likelihood of some mortality</td>
<td>Pollution of land and/or water sources rendering land or water un-useable for more than a calendar year. Denial of access to useable land for more than a calendar year. Denial of a water source for more than a calendar year</td>
<td>Destruction of the local built environment resulting in a reduced public service / transport supply line in immediate 3 month period after incident</td>
</tr>
<tr>
<td><strong>5 CATASTROPHIC</strong></td>
<td>Mass casualty scenario with high levels of mortality and serious injured overwhelming insti medical care capabilities</td>
<td>Pollution of land and water sources via chemical discharge, pollution of air via gaseous emissions and contamination of land and water via unexploded ordinance thrown from site of explosion</td>
<td>Destruction of the local built environment, shelters, public buildings, medical facilities and transport systems resulting in internal displacement, significant disruption to local services and/or impact on medical services</td>
</tr>
</tbody>
</table>
# ASM PREDICTED EFFECT

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<td>E V. LIKELY</td>
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**CONSEQUENCE**

| 1 | NEGLIGIBLE | Minor injury to one or a few people requiring minor medical attention |
| 2 | MODERATE | Individual casualty with injuries requiring local treatment and no long term disability |
| 3 | SIGNIFICANT | Casualty with serious injuries requiring hospitalization and long-term rehabilitation i.e. loss of fingers, damaged eyesight, damage to feet / loss of toes. |
| 4 | SEVERE | Multiple serious injured and likelihood of some mortality |
| 5 | CATASTROPHIC | Mass casualty scenario with high levels of mortality and serious injured overwhelming in situ medical care capabilities |

**STAGE 3**

<table>
<thead>
<tr>
<th>IATG</th>
<th>R3.1</th>
<th>R3.2</th>
<th>R3.3</th>
<th>R3.4</th>
</tr>
</thead>
</table>

**STAGE 2**

<table>
<thead>
<tr>
<th>End State</th>
<th>R2.1</th>
<th>R2.2</th>
<th>R2.3</th>
<th>R2.4</th>
</tr>
</thead>
</table>

**STAGE 1**

<table>
<thead>
<tr>
<th>R1.1</th>
<th>R1.2</th>
<th>R1.3</th>
<th>R1.4</th>
</tr>
</thead>
</table>

**STAGE 1**

<table>
<thead>
<tr>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
</table>

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**To the best of the HIRA teams knowledge the hazard has not previously occurred & circumstances when it could occur cannot be foreseen**

**To the best of the HIRA teams knowledge the hazard has occurred at least once but it is not likely that the conditions needed for recurrence may occur if additional factors are present**

**To the best of the HIRA teams knowledge the hazard occurs annually and the conditions needed for recurrence may occur if additional factors are present**

**To the best of the HIRA teams knowledge the hazard is predicted to occur at least once in the imminent future / this calendar month**
Costs

The cost of saving lives by reducing ammunition accidents and stopping proliferation of ammunition is as low as one international supervisor/teacher plus a body of men and vehicles from the host country.

The cost of clearing up after an unplanned explosion in a munitions site can be huge. The Gardec explosion in Albania destroyed 9,000 tonnes of ammunition. It cost 10 million dollars to clear the area afterwards, plus 18 million dollars in repairs to buildings, repairs to other infrastructure, compensation etc.

Costs for a planned disposal of ammunition is now down to one Euro per submunition – with recycling it can be cost neutral.
REMEMBER

1. All procedures using this method complement the IATG

2. The aim of this method is to assist a country in achieving the lowest IATG level of ammunition management

3. Once at that level IATG takes over

4. This is a low cost method – to achieve IATG standards funding has to be raised

5. It is designed to keep costs down, and as such depends on the provision of labour and resources from the country
THANK YOU FOR LISTENING

QUESTIONS PLEASE?