Speaker notes prepared by Pilar Reina, Small Arms Survey.

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Good afternoon

Thank you very much, Mario for this nice introduction.

Dear Excellencies, ladies and gentlemen.

It is a pleasure to be today here again and I want to thank the organizers of this meeting, for letting us to take part in this presentation and for given us this opportunity to engage this community that we do not engage as frequently as we should.

Initially, I would like to introduce very briefly who we are to those who are not familiar with the Survey, then I want to focus on the **UEMS project, the database on Unplanned Explosions at Munitions Sites**.

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The Small Arms Survey is an independent research project located at the Graduate Institute of International and Development Studies here in Geneva, very close to where we are (You are most welcome to come to visit to us and to take with you some copies of our publications). We were established in 1999. The Survey serves as the principal international source of public information on all aspects of small arms and armed violence and as a resource for governments, policy-makers, researchers, and activists. We are funded primarily by governments, and we are a bit different from the community of NGOs and civil society as we benefit from impartial policy-relevant analysis. We work very closely with governments, not just those that fund us but other as well, in an effort to help them make best policies and best programs to reduce incidents of armed violence and incidents of illicit of SALW proliferation.

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In this slide, I wanted to let you know about our RASR initiative website, **RASR stand for Regional Approach for Stockpile Reduction,** which is focused on excess stockpiles in nine south-east European states (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Former Yugoslav Republic of Macedonia, Montenegro, Moldavia, Romania, Serbia and Slovenia). But I think if you look at this website, you would be able to find relevant information for regions outside that region.

You can also find PPSM **best practices cards** that could be used as a game, but primarily used as learning tool. I will briefly refer to them later in this presentation.

Now, let's dive into the database on UEMS.

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First, I will present an examination of the historical and geographical data in order to understand why UEMS is a growing and a global problem. Second, I will present findings on the causes that produce accidents of this nature. Then, I would like to illustrate one of the uses of this information through an UEMS case study and its Lessons Learned. Finally, I will focus on why is so important accidents reporting and investigation.

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It would be worthwhile to start this part of the presentation by defining this phenomenon.

The Survey defines UEMS as unintended explosions of abandoned, damaged, **improperly and also properly** stored stockpiles of munitions and explosives. Munitions sites comprise areas such as those temporarily maintained during demilitarization or explosive ordnance disposal, as well as processing sites, whether temporary or permanent; ammunition manufacturing facilities (ordnance factories) are not included, but accidents during ammunition processing operations within Munitions Sites have been included where known.

Started in 2011, The UEMS database is an attempt to seize the problem posed by excess, unstable, loosely secured or otherwise at-risk stockpiles of conventional weapons and munitions. Often the problem is reflected by the tendency of some governments to look at surplus as an asset rather than a liability.

To promote effectively the implementation of PSSM best practices and to ensure that States remains solely responsible for the use of force, the UEMS database is a big step forward to understand the scale and dimension of only one of the problems that occur throughout the ammunition lifecycle.

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Findings of this project show how explosive accidents of this nature are a global and apparently a growing problem.

The Survey has produced an historical overview of every known UEMS event dating back to 1987. To date, 453 accidents of this nature have been recorded.

This graph shows why UEMS is a growing problem: during the second ten-year period covered by the database, compared to the first ten-year period, there has been a more than two-fold increase in the number of accidents of this type recorded: from 71 events during the period 1987–1996, to 202 events in the subsequent ten-year period (1997–2006). In more recent years, including 2012, the rate has continued to increase to an average of more than two accidents per month. In 2011, the average number of explosions reached more than three per month - the highest rate recorded in a calendar year. While some of the recorded increase may possibly be linked to better reporting of accidents, it appears to

be clear that the number of explosions is not decreasing despite efforts to address their causes.

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This graph shows in a comparative manner, the number of UEMS events and the approximate number of casualties recorded per year, including fatal casualties and injured people. Of course, there is no claim that the data set is fully comprehensive. In fact, the UEMS database is compiled from many different open sources of information, including text books, learned journals and news reports; but there is no guarantee that it contains a record for every explosive accident that has occurred in the period to which this graph refers to. I do believe, however, that the UEMS Database is one of the most complete sources of information on explosive events of this nature currently available, and that most major accidents that have occurred in the last 26 years will have been identified in the extensive searches that have been undertaken in compiling the database.

The above caveat notwithstanding, the graphic shows that the number of casualties does not decrease in time and in fact remains high. The average of casualties per year during the last six years (2007-2012 : 1064) is almost as high as the average of casualties per year of the previous ten-year period (1997-2006 : 1411.1) and more than three times the average of casualties per year, during the first ten year period of this historical examination (between 1987 – 1996 : 333).

In addition to differences in the frequency of recorded events, there is also an important disparity in the consequences of individual events; in particular with regards to human casualties. For example, during the eight US events, the average of casualties (both dead and injured) was just over two people per incident,[1] while the global average per event was 57.[2] Indeed, one explosion in Congo-Brazzaville, which occurred in March 2012, claimed at least 1700 casualties.[3] It is worth noting that, in the events with large numbers of casualties, civilians typically are the most affected.

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Findings also show that UEMS is clearly a global problem.

UEMS dataset shows that the 453 event were recorded in 92 countries, affecting almost half of UN member states, and covering every continent except Antarctica and Australia. Asia with 194 recorded accidents affecting 32 countries, followed by Europe with 147 accidents affecting 22 countries, are clearly the most affected continents. In Africa, 62 events have been recorded affecting 21 countries, whereas in the Americas, 44 events

[1] Eight events were reported in the U.S. since 2000. A total of 12 people were killed during these events, and 2 injured.
[2] Since 2000 there have been 283 events outside of the United States. In those events, 3,708 people were killed, and 12,518 injured.
[3] 282 dead and 1,500 other people were injured after a series of explosions occurred at camp Mpila.

have been recorded affecting 17 countries. The Pacific Region seems to be clearly not being affected as greatly as some others, as only one accident has been recorded in New Zealand.

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Initial research on Unplanned Explosions at Munitions Sites sought to identify some other sources, lists/databases, and we have realized that they were thin in details and not able to provide enough information to actually size the dimension of the problem; and, to provide information that could possibly help us to understand better how and why this unfortunate accidents take place.

The Small Arms Survey has established a classification of reported causes, with the support of several international partners, including NATO Support Agency (NSPA). This table identifies and organizes the reported causes of accidents leading to accidental ignitions of ammunition in storage areas and processing sites that are consistent with the established UEMS definition.

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As such, causes are often associated with human error of one kind or another.

However, the main limiting factor is the lack of systematic reporting and investigation. Indeed, not always is easy to establish the cause of explosives accidents because information on these events is mainly based on open sources and not official reports, where proper investigation have been undertaken to formally determine the immediate cause and the contributor factors that led to the explosion. [If we want to be us an effective tool for governments, and help them to prioritize policies and set agendas then we need to have better access to information than now exist.]

What we are looking at in terms of causes:

1. Sub-standard storage, 2. Defects in storage area or processing site, 3. Handling errors and poor working practices, 4. Poor security conditions/External events, 5. Cause currently undetermined.

Each one of this main classification is sub-divided into what we define primary causes and sub-causes.

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Initials findings showed that 30 % of the causes were unknown. But further research has allowed us to reduce this gap to a 24%. But In fact, the problem of unknown causes is a real issue for us. An initial examination of the recorded causes shows that 26% of accidents occur mainly in circumstances of poor security conditions and external events. 24% of accidents are due to handling errors and poor working practices. Sub-standard

storage is also responsible for 24 % of all causes, whereas 9% of causes for accidents are due to defects in storage areas or processing sites.

To have a more effective tool for you, it really is important to have better information of what have happen than what we currently have, although we have done a lot progress from what existed two years ago.

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The damage, casualties, and impact on communities of an explosion within munitions sites can be devastating, and the economic costs of the subsequent explosive ordnance disposal clearance can be far greater than the prior implementation of safer procedures, limited infrastructure development, and stockpile disposal would have been. The economic and social impact of such explosions should not be underestimated, and further research should try to identify these very real costs.

In order to illustrate this, I would to present only one case study: the case of Albania.

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On Saturday 15 March 2008 a serious explosion occurred at a military ammunition depot in Gerdec, near Vore village. Thousands of artillery and mortar shells, grenades, and small arms ammunition litter the area. Some of the unexploded ordnance, dating from World War II, was scattered up to a 5km radius from the explosion site. The explosion resulted in the death of 26 people and more than 300 injured. The explosion was reportedly caused by a Fire that came from the exhausted pipe of a car and the negligence of someone close by who was smoking. Criminal investigation seems to have resulted in the prosecution of three upper level defense officials. The Defense Minister resigned.

Location: **Gërdec**
Time details: **15.03.2008 at 0430 PM**
Casualties: **326. Fatalities (26); Injuries (300+)**
Content: **More than 10 tons of propellant,**
100-3,000 tons of ordnance items
Owner: **Privately run ammunition depot**
Causes: **3. Handling errors/poor working practices**
Consequences:

- **Blast effect: 5 km radius**
- **Evacuation: 4,000**
- **Estimated costs: 50+ Mill EUR**
- **Political: Three prosecuted. Albanian Prime Minister dismissed several upper level defence officials and the Defence Minister resigned.**

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Lessons Learned in the case of Albania were established through open sources but also in an in-depth study made by the Small Arms Survey through a publication that it was

released in December last year on Costs and Consequences: Unplanned Explosions and Demilitarization in South-east Europe.

1. Greater oversight over demilitarization activities; (this card on the corner is a reminder of what standards procedures should include In order to increase oversight, including over demilitarization activities);
2. Need to strengthen technical expertise;
3. Need to develop an emergency response plan;
4. Possibilities for international technical assistance.

We know that in the case of Albania, there is being consistent support from NATO organization and other international agencies and governments to dispose large amounts of old ammunition that has resulted in an improvement of the ammunition storage management.

The UEMS project is constantly doing research to update the information of these accidents when it became available and despite we also benefit from an extensive network that provide us with useful information, including high-government representatives, international and non-governmental agencies, field worker and practitioners; the research work that this project entails is a time-consuming factor that it doesn't always result in better quality of the data.

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Finally, the importance of implementing national and systematic accidents reporting and investigation will allow:

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- Preserving information electronically on past accidents and the lessons learnt from them;
- Monitoring the safety of activities involving explosives and therefore identifying areas that require special attention;
- Assisting accident investigations;
- Providing data to validate explosion effects models;
- Providing a service to officials seeking information about specific incidents;

Finally, Access to high quality data is of paramount importance in both cases, and this in turn depends on good practices in accident reporting.

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We have created a reporting template in order to facilitate the flow of information in order to providing us with better quality of data to make our analysis and indicators more reliable and effective.

The kind of information that we seek is much more thorough than what others have undertaken and it was really created to provide assistance to practitioners those in governments, and also those in demilitarization organizations that work close in helping governments.

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Conclusion

1. Big step forward to understand the scale and dimension of the problem;

2. Valuable resource to improve safety of ammunition storage;

2. Need for more systematic reporting and investigation of UEMS and accidents throughout the ammunition lifecycle;

The Small Arms Survey will continue to act as a principle reference point and source of information on UEMS and their consequences. We will continue to work together with UN members States to encourage better reporting and sharing of information and to promote best practices in order to decrease the number of explosions, unintended consequences, but mainly to reduce impact on civilian population.