GROUP OF GOVERNMENTAL EXPERTS OF THE PARTIES TO THE CONVENTION ON PROHIBITIONS OR RESTRICTIONS ON THE USE OF CERTAIN CONVENTIONAL WEAPONS WHICH MAY BE DEEMED TO BE EXCESSIVELY INJURIOUS OR TO HAVE INDISCRIMINATE EFFECTS

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TECHNICAL IMPROVEMENTS TO SUBMUNITIONS

Transmitted by France

It would appear from the statistical analyses so far presented to the States Parties to the 1980 Conventional Weapons Convention that cluster weapons (weapons incorporating submunitions) are the major issue in the overall problem of the explosive remnants of war (ERW). It should, however, be noted that from an operational point of view such weapons are particularly suited to the neutralization of ground targets (vehicles, artillery batteries, temporary battlefield supply points, etc.) and are of unrivalled efficiency. A State having cluster weapons that decided today to do without them would therefore be agreeing to a major reduction in its armed forces' operational capabilities. On the other hand, cluster weapons, which are dispersed by terrestrial or airborne means and sometimes in large numbers over wide areas, can have an appreciable failure rate and consequently occasion a significant humanitarian risk to civilians.

This paper seeks to explore feasible solutions for technical improvements in submunitions.

I. THE TECHNICAL CHARACTERISTICS OF SUBMUNITIONS AND HUMANITARIAN RISK

Not all categories of submunition entail the same degree of humanitarian risk. How great that risk is depends on a number of factors, which need to be taken into account:

The size of the submunitions: as a general rule, the smaller the submunitions, the more of them there will be in a given size of cargo projectile, the harder they will be to detect and identify, the more difficult it will be to make them reliable and, therefore, the greater the humanitarian risk;

The accuracy of the submunitions: in principle, the more accurate a weapon, the smaller the total quantity of munitions required to achieve a given level of effectiveness. Accuracy also limits dispersal, enabling more accurate, precise identification of the contaminated areas with a view to marking and clearance;

The purpose of the submunitions: a distinction has to be made between precision weapons (aerial cluster bombs having an effective guidance system and intended for the destruction of ground infrastructures such as airport runways) and area weapons. Area weapons are intended to cut swathes through enemy troop concentrations by using large numbers of submunitions (the term "saturation attack" is also used) and they are the source of the main humanitarian threat.

It should be noted that, while submunition size and accuracy are measurable technical parameters, purpose can only be determined on the basis of a set of criteria relating to the design of a weapon that are more difficult to quantify numerically.

II. OPTIONS FOR THE TECHNICAL IMPROVEMENT OF SUBMUNITIONS

For the purposes of the following paragraphs, "reliability rate" means the ratio of the number of munitions that explode after arming of their firing mechanism to the total number of munitions delivered. Conversely, "dud rate" means the ratio of the number of munitions that do not explode after arming of their firing mechanism to the total number of munitions delivered.

It will be for the governmental experts to decide, taking into account both the technical and operational limitations of the weapons systems and the desired humanitarian goals, what numerical data is needed and what the levels should be.

The following can, however, be put forward at this stage as possible approaches to improvement:

1. Taking into account the "risk-level criteria" referred to above, it is recommended that the search for improvement should focus on area-effect submunitions with the following characteristics:

- Area (or saturation) weapons that carry a large number of small submunitions. For a given reliability rate, the more numerous the submunitions, the more numerous the duds;

- Low-accuracy cluster weapons. It should be possible to define, from the particular characteristics of the launcher, the fuse precision and the operational constraints, what would be an acceptable level of accuracy for a cluster vector.

2. For such submunitions, the following technical improvements would be desirable:

- Achievement of a high rate of reliability. Reliability rates, which must be defined for standard use conditions (in terms of terrain, weather conditions, etc.), are peculiar to each type of munition, depending on its life profile. In addition, they depend on how closely the assembly, production and storage of the munitions are monitored. Consequently, they are not easy to check;

- Obligatory inclusion of self-destruction or self-neutralization mechanisms. This requirement could be waived, on operational grounds, for high-precision submunitions used against defined targets, the reason being that, in the state of the art, effective self-destruction systems are more easily added to large, than to very small submunitions. Self-destruction may, at first sight, seem preferable to self-neutralization, inasmuch as it definitively eliminates the munition and the contamination of the area. However, it does cause an explosion, with not always controllable collateral effects, whereas a self-neutralized munition is, in theory, no longer dangerous;

- Marking of the most dangerous submunitions (for example, by means of a distinctive colour or emblem) to make them easily recognizable.

3. There should be a rule about indicating the presence of submunitions. The primary objective in this respect would be to protect civilians. Consequently, indication should not be limited to certain types of submunition on the pretext that they are more dangerous than others. Amended Protocol II to the 1980 Conventional Weapons Convention (in particular, its article 3, paragraph 10, and article 9, paragraph 2, first subparagraph) provides a working basis that would seem of use for an instrument applicable to submunitions.

4. On the other hand, detectability would not afford any substantial improvement as regards the ERW issue. Feedback from deminers shows that the large quantities of metal debris on battlefields deceive detection equipment. Furthermore, in most cases submunitions remain on the ground surface. In principle, therefore, they do not necessitate any special search and detection procedures. Location of submunitions is facilitated by indication of their presence and, where appropriate, by the application of special markings. Some submunitions, however, are designed to penetrate deep into the ground. These are generally large projectiles that are dropped by aircraft in a cluster bomb having an effective guidance system and that are intended for the destruction of infrastructures such as airport runways. They leave clearly visible signs of impact on the ground and are not usually physically accessible to civilians. It would appear, therefore, that detectability is not a relevant criterion in the context of the search for technical improvements in submunitions.

5. If standards are to be set for the future, flexible provisions should be made for existing munitions, including, in particular, suitably staggered time limits for withdrawal from service.

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