The SMArt 155 SFW

Is it reasonable to refer to it as a cluster munition?

1) If what we seek by this question is to know whether the SMArt 155 falls within that category of weapons which share the properties of *cluster munitions* which made them both indiscriminate and disproportionate in actual use then the answer must be that the evidence is not yet available, since the SMArt 155 SFW has never been used in combat conditions. It should be recognised that this categorisation, based on observed facts, has neither relevance nor necessary connection to the title which a manufacturer may choose to use for a given weapon or a part of a weapon. For instance, Textron Inc., who manufacture the only Sensor Fuzed Weapon (SFW) which has been used in combat to date, the BLU 108 SFW, and which falls within the recent definition of cluster munitions adopted for the (as yet un-ratified) Convention on Cluster Munitions (CCM) refer to the BLU 108 SFW submunition as a *'skeet'*, this commercial title of course in no way alters the fact that the *skeet* **is** a *submunition*. However there are good reasons for classifying the SMArt 155 SFW and the similar Swedish/French-manufactured BONUS as cluster munitions until they are proven in combat use to be otherwise; as follows:

a. The definition of cluster munitions in the CCM text has some aspects which are arbitrary, the result of negotiations between the State delegations in order to arrive at a definition which would achieve support by the maximum number of governments for the treaty. Thus there is an element of the treaty, the definition, which only has logic within that specific context dealt with in detail later in this paper, which, while it addresses the needs and exigencies of international diplomacy, does nothing to change the engineering facts.

b. It may have been argued in the past that Sensor Fuzed Weapons with submunitions were, *per se*, different weapons than cluster munitions; but the evidence from the use of the BLU108 SFW in Iraq and the inclusion of that weapon within the definition of cluster munitions used in the CCM text would strongly indicate that Sensor Fuzed Weapon do fall broadly within the generic definition of cluster munitions. In fact the Cluster Munition Coalition (CMC) specifically included sensor fuzed weapons within the definition published in October 2007 (See Annex A with relevant sections highlighted). The members of the CMC responded to the wide range of definitions of cluster munitions which were neither adequate for the purposes of the Oslo treaty process nor comprehensive nor, in some cases, technically accurate. A technical working group was convened which included a wide range of relevant expertise in order to agree a comprehensive definition for cluster munitions based both their technical properties and their demonstrated impact.

c. There are good technical reasons to classify the SMArt 155 SFW as a cluster munition since it meets the simple criteria of being a weapon consisting of a number of submunitions carried to the vicinity of the targeted area within a carrier projectile.

In the case of the existing weapon that carrier projectile is an artillery round, but could equally be an aircraft bomb or a rocket or other projectile in which case the number of submunitions would be likely to be increased.

2) It may be that the manufacturers of the SMArt 155 SFW are relying on the fact that the CCM definition of cluster munitions (See ANNEX B) will, when that treaty comes into force, exclude it from the prohibitions of the treaty. However there are two factors which limit the finality of such a view:

a. The definition has limited relevance, thus it begins *'For the purposes of this Convention'*. So, for instance, although the treaty seeks to limit the impact of cluster munitions on non-combatants the definition used in the text does not nullify the CMC definition shown at Annex A, that was the definition adopted by civil society advocates based on a clear and expert understanding of the generic design and impact properties of cluster munitions. The treaty definition was the result of negotiations where a broad consensus between more than one hundred government delegations was sought, whilst still retaining essential defining elements of cluster munitions as far as proved possible. It is no secret that a certain level of *'horse trading'* is common to all such negotiations, thus a perfect and comprehensive *actual* definition would be an unlikely outcome.

b. There are aspects of the negotiated definition which are arbitrary (see below) – those in respect of the number of submunitions contained in each carrier projectile [1(c)(i)] and the weight of each submunition [1(c)(ii)] – since neither of these factors can be shown *to avoid indiscriminate area effects nor to reduce the risks of unexploded submunitions* the intention stated in the treaty text. History has shown that a cluster munition with comparatively few submunitions may result in substantial indiscriminate usage as great or even greater than a weapon with more submunitions; often the obvious result of more primary projectiles being deployed thus resulting in a high number of submunitions. This should be a specific concern in respect of artillery-based systems, it is common for military forces to fire high numbers of artillery shells in combat, regardless of the nature of the specific ordnance involved. It is difficult to understand the logic which dictated that fewer submunitions of less weight would reduce the number of failed submunitions – my own observations of unexploded submunitions in many cluster munition-affected countries have offered no such assurance. Failures are a result of many factors, of design, deployment and environmental conditions at the time and location of the attack. The weight and size of a submunition may, once it has failed to operate as designed, reduce the possibility of it being innocently initiated by a civilian, but a high percentage of deaths and injuries result from deliberate disturbance of unexploded submunitions by civilians, either through ignorance or necessity. The final requirement for exemption from the treaty definition [1.(c)(iii)] is based on each submunition incorporating a means to *detect and engage* a single target. While it can reasonably be argued that some cluster munitions are less indiscriminate than others as a result of their design and operational characteristics, this specific aspect of the

text refers to a technical property which has never been successful in practice; as has been previously noted the BLU 108 SFW is the only submunition of this design to have been deployed in combat and it failed to function as designed[1]. The manufacturers and some governments who have procured the SMArt 155 SFW argue, perhaps predictably, that it will function as designed, others with direct experience of the impact of cluster munitions and their consistent failures despite similar claims think otherwise. The weakness of the text is, of course, that it requires only that the submunition is *designed* to successfully detect and engage its target (which under the requirements of other international laws must be a legal target) however the 1969 Vienna Convention on the Law of Treaties requires that the convention must be observed in 'good faith', thus a failure in combat use to meet all of the requirements of the treaty definition would make the SMArt 155 SFW subject to the CCM terms as a cluster munition. The fact is that no certain evidence exists either way, so it must be as reasonable for one person to consider the weapon defined as a cluster bomb by the CCM text as for another to consider otherwise until irrefutable evidence exists.

1. It does not mean the following:

(a) A munition or submunition designed to dispense flares, smoke, pyrotechnics or chaff; or a munition designed exclusively for an air defence role;

(b) A munition or submunition designed to produce electrical or electronic effects;

(c) A munition that, in order to avoid indiscriminate area effects and the risks posed by unexploded submunitions, has all of the following characteristics:

(i) Each munition contains fewer than ten explosive submunitions;

(ii) Each explosive submunition weighs more than four kilograms;

(iii) Each explosive submunition is designed to detect and engage a single target object;

The fact that neither the manufacturers nor governments who have procured the SMArt 155 SFW have seen fit to respond to the very specific concerns regarding the viability of the weapon's sensor array serves to support the probability that they do not actually know if the weapon will perform as designed in combat conditions. The questions put in my Dublin presentation (see footnote 1) and some months earlier in a Austcare/Handicap International discussion paper[2] at the Wellington Diplomatic Meetings on Cluster Munitions in February 2008 were:

---

[1] See McGrath. R SENSOR-FUZED SUBMUNITIONS & CLEAN BATTLEFIELDS: EXAMINING THE FACTS**.** Presentation at Dublin Diplomatic Conference 21 May 2008: http://community.eldis.org/.59ba4714/DUBLIN~1.MHT or http://www.handicap-international.de/index.php?id=432&no_cache=1&type=98 or (with photographs): http://thebanbus.org/2008/05/sensor-fuzed/

[2] Austcare/Handicap International: *Sensor-fuzing and SMArt submunitions: An unproven technology?* Feb.2008 *www.**austcare**.org.au/media/44950/**sensor**%20**fuzed**%20and%20smart%20submunitions_...*

The SMArt 155 is equipped with three sensors – Passive Infrared and passive and active 94GHz millimetre wave radar – an array designed to acquire targets by analysing a combination of thermal (heat) and shape information. … …

1.Which of the sensors has primacy in the process of acquiring a target? Or, since that question may be too simplistic, how do the three sensors interact in order to acquire a target?

and

2.The SMArt 155 is designed to acquire a target in a single pass (over the designated target area) – what level of certainty must exist to confirm a target? What level of uncertainty would initiate self- destruct of the submunition or would actively reject a specific target?

Since, when the Convention on Cluster Munitions enters into force and if the SMArt 155 SFW is ever to be used in combat, its legal definition for the purposes of the treaty will rely almost totally on the effectiveness of the weapons' sensor array, it would seem essential that the manufacturers and user States make every effort to reassure the public that, at least in this strictly legalistic sense, the SMArt 155 SFW may not be a cluster munition as defined. They have not done so.

3) Beyond the treaty, since the CCM definition exists *only for the purposes of the Convention*, it is perfectly reasonable to refer to the SMArt 155 SFW as a cluster munition since, despite any wish by the manufacturers for it not to be defined as such, the weapon has been widely referenced within that category. This is not an uncommon situation, for marketing reasons a manufacturer may often wish a product to be referred to in a specific way, rather than following the dictates of common usage; their success will depend on their marketing skills, not on the use of legal pressure to force the public to accept a chosen *genre* for the weapon. For instance, some persons may, based on their personal perception of war and the arms industry, refer to the SMArt 155 SFW as a '*people killer'* and one can imagine that the manufacturers would be unhappy with such a label being linked to their product. But the courts would soon be overwhelmed if every weapons manufacturer took legal action against citizens who described their weapons in such simplistic but broadly accurate terms.

4) It is notable that the German government also gave every indication that they considered sensor fuzed weapons to be cluster munitions, as did Textron Inc., the manufacturers of the BLU108 SFW since they both took every opportunity to describe the properties and qualities of their respective weapons at meetings of the Convention on Certain Conventional Weapons (CCW) and during the various Oslo Process negotiations in different parts of the world – their interventions and presentations were specifically targeted at meetings dedicated to cluster munitions and while they sought to convince the international delegations that their respective

weapons would not replicate the problems caused by *traditional* cluster munitions it was widely assumed that they were making a case for a *new kind* of cluster munition – the *sensor fuzed weapon*. If the German manufacturers did not consider that the SMArt 155 SFW **was** a cluster munition one would have thought it unwise for the German government delegation to have so inextricably linked the weapon to the two forums dedicated to negotiating the future of cluster munitions – surely, had that been the case, they should have dissuaded the delegation from such interventions and presentations on their behalf?

5) In summary, I consider it to be technically and generally reasonable to refer to the SMArt 155 SFW as falling within the general description of a *cluster munition*, especially as it is an untried weapon which may, like the BLU 108 SFW, prove to display further characteristics of cluster munitions if it is ever used in combat.

It would seem to be an extremely dangerous precedent for weapons manufacturers to be able to use legal avenues to enforce a determination of how civil society may generically categorise the weapons they make at a time when both governments and civil society have finally taken steps to limit the impact on non-combatants of unrestrained design and deployment of deadly weapons.

Rae McGrath

Specialist in the impact of conflict on non-combatants

Langrigg, Cumbria, United Kingdom

15th February 2009

ANNEX A

Cluster Munition Coalition Definition for the Future Cluster Munition Convention
October 2007

Any munition which meets the following definition would be prohibited by the convention.

Definition

A cluster munition is a weapon comprising multiple explosive submunitions which are dispensed from a container.

An explosive submunition is a munition designed to be dispensed in multiple quantities from a container and to detonate prior to, on, or within a predetermined time after impact.

Notes on the Definition

The CMC definition is deliberately short and simple, without extraneous technical terminology. The CMC feels that a much longer, more complicated definition that tries to account (either through explicit inclusion or exclusion) for everything that might conceivably be considered a "cluster munition" would be unnecessary and possibly counter-productive for this convention. The intention of this convention should not be as an arms control agreement between potential adversaries but a humanitarian agreement between likeminded states.

With this definition there is **no exception** for:

- submunitions that have self-destruct or self-neutralizing or self-deactivating fuzes..
- submunitions based on a specified reliability rate.
- so-called "direct fire" submunitions
- cluster munitions based solely on a limit on the number of submunitions.
- so-called "sensor-fuzed" submunitions.[3]

The definition would **not prohibit** non-explosive or inert submunitions or pyrotechnic submunitions such as smoke, flare or illuminating submunitions;

There could be differing interpretations on the status of the following, which negotiators should clarify:

- incendiary submunitions;
- landmines with self-destructing mechanisms;
- nuclear weapons with multiple warheads;
- chemical and biological submunitions.

[3] The CMC recognizes that some states believe certain such weapons do not cause unacceptable harm to civilians. However, too little is known about these weapons and their effects to warrant a blanket exception in the convention at this time. The CMC believes that the burden of proof is on governments to demonstrate otherwise.

ANNEX B: Excerpt from the Convention on Cluster Munitions

Article 2 Definitions

For the purposes of this Convention:

1. “Cluster munition victims” means all persons who have been killed or suffered physical or psychological injury, economic loss, social marginalisation or substantial impairment of the realisation of their rights caused by the use of cluster munitions. They include those persons directly impacted by cluster munitions as well as their affected families and communities;

2. “Cluster munition” means a conventional munition that is designed to disperse or release explosive submunitions each weighing less than 20 kilograms, and includes those explosive submunitions. It does not mean the following:

(a) A munition or submunition designed to dispense flares, smoke, pyrotechnics or chaff; or a munition designed exclusively for an air defence role;

(b) A munition or submunition designed to produce electrical or electronic effects;

(c) A munition that, in order to avoid indiscriminate area effects and the risks posed by unexploded submunitions, has all of the following characteristics:

(i) Each munition contains fewer than ten explosive submunitions;

(ii) Each explosive submunition weighs more than four kilograms;

(iii) Each explosive submunition is designed to detect and engage a single target object;

(iv) Each explosive submunition is equipped with an electronic self-destruction mechanism;

(v) Each explosive submunition is equipped with an electronic self-deactivating feature;

3. “Explosive submunition” means a conventional munition that in order to perform its task is dispersed or released by a cluster munition and is designed to function by detonating an explosive charge prior to, on or after impact;

4. “Failed cluster munition” means a cluster munition that has been fired, dropped, launched, projected or otherwise delivered and which should have dispersed or released its explosive submunitions but failed to do so;

5. “Unexploded submunition” means an explosive submunition that has been dispersed or released by, or otherwise separated from, a cluster munition and has failed to explode as intended;

6. “Abandoned cluster munitions” means cluster munitions or explosive submunitions that have not been used and that have been left behind or dumped, and that are no longer under the

control of the party that left them behind or dumped them. They may or may not have been prepared for use;

7. “Cluster munition remnants” means failed cluster munitions, abandoned cluster munitions, unexploded submunitions and unexploded bomblets;

8. “Transfer” involves, in addition to the physical movement of cluster munitions into or from national territory, the transfer of title to and control over cluster munitions, but does not involve the transfer of territory containing cluster munition remnants;

9. “Self-destruction mechanism” means an incorporated automatically-functioning mechanism which is in addition to the primary initiating mechanism of the munition and which secures the destruction of the munition into which it is incorporated;

10. “Self-deactivating” means automatically rendering a munition inoperable by means of the irreversible exhaustion of a component, for example a battery, that is essential to the operation of the munition;

11. “Cluster munition contaminated area” means an area known or suspected to contain cluster munition remnants;

12. “Mine” means a munition designed to be placed under, on or near the ground or other surface area and to be exploded by the presence, proximity or contact of a person or a vehicle;

13. “Explosive bomblet” means a conventional munition, weighing less than 20 kilograms, which is not self-propelled and which, in order to perform its task, is dispersed or released by a dispenser, and is designed to function by detonating an explosive charge prior to, on or after impact;

14. “Dispenser” means a container that is designed to disperse or release explosive bomblets and which is affixed to an aircraft at the time of dispersal or release;

15. “Unexploded bomblet” means an explosive bomblet that has been dispersed, released or otherwise separated from a dispenser and has failed to explode as intended.