GROUP OF GOVERNMENTAL EXPERTS OF THE STATES 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

CCW/GGE/II/WP.20
23 July 2002

ENGLISH
Original: CHINESE, ENGLISH and RUSSIAN

Second Session
Geneva, 15-26 July 2002

Joint Discussion Paper
By China and the Russian Federation

Technical Improvements of Ammunitions to Prevent and Reduce ERW

The objective of discussing ERW issue is to solve the problem of the injuries to civilians after a conflict caused by the use of certain types of weapons, rather than to limit or even deprive sovereign states, developing countries in particular, of their legitimate rights for self-defence.

Therefore, any proposed measures on technical improvements should take into account the legitimate right for self-defence of a sovereign state and the humanitarian concerns in a balanced manner. At the same time, the divergence among countries in terms of military technological levels and economic development should also be taken into consideration. Any proposed measures should be assessed comprehensively in the aspect of effectiveness, necessity and feasibility, so that they can be acceptable to most of the developing countries. If rigid technical specifications of certain types of weapons and munitions are set, which will in effect limit or deprive most developing countries of their legitimate rights for self-defence, they can hardly be acceptable to these countries. Apparently, such an approach deviates from the original intention of dealing with ERW issue.

Self-destruction (SD) and self-deactivation (SDA) Devices.

To ensure safety in the process of manufacturing, assembling, testing, transportation, operation and ball firing, all munitions are equipped with safety devices in the fuse. In general, SD device can be installed in two ways: series connection and parallel connection. Series connection means that SD devices are connected with safety devices in series, and then connected with other igniters in parallel. Only after the fuses are set to arm, can SD devices function. If the fuses fail to arm when munitions reach the targets, SD devices cannot function. Parallel connection means connecting SD devices with safety devices of the fuse in parallel, and SD device has its own safety device.

When discussing the placement of SD devices, following factors should be taken into account.

1. **The impact on the reliability of munitions**. Under certain condition of technology and craft, the more functions the fuses have, the lower the reliability is, thus probably reducing

the reliability of the whole system, which is particularly true for developing countries due to inadequate technologies and processing equipment. In theory, SD devices installed by series connection, as mentioned above, cannot increase, but rather decrease the reliability of the fusing system. Though the way of parallel connection can improve the reliability of the fusing system to some extent, it will lead to more complex structure and bigger size. In addition, production cost will increase by 1/5 to1/4.

2. **The possibility of malfunction of SD devices**. The reliability of SD devices cannot be fully assured. That is to say, SD devices cannot function by 100%. In some cases, due to the high speed of munitions, if the fusing systems fail to function, they will be damaged when the munitions are striking the target. And the SD devices will also be damaged and fail to function.
3. **Technical complexity**. Installing SD devices is a complicated process. Most of the countries, especially developing countries, do not have the adequate technology. Some sub-munitions are so small in size that installing SD devices on them needs advanced technology, equipment and precision processing techniques. In some cases, it is even beyond the scope of technical feasibility.
4. **The cost effectiveness**. According to the assessment of experts, the cost of designing and producing new munitions with SD devices are several times higher than that of producing munitions without such devices. And retrofitting existing munitions costs almost the same as producing new ones. Considering the complexity of installing and the low reliability of SD devices, it will only bring heavy economic burdens to most countries, especially developing countries, while the effectiveness is limited. Thus, this approach is not cost-effective.

To install SDA devices to munitions, though different from SD in technical aspect, will meet same financial and technological problems as SD does, thus affecting its effectiveness and feasibility.

To sum up, installing SD and SDA devices require huge financial and technical supports. When discussing these measures, the divergence in economic and technological capacity of different countries should be fully taken into consideration. Only in this way, the problems caused by ERW can be solved fairly and effectively. For the above-mentioned reasons, for a number of countries, it makes little sense to equip munitions with the SD and SDA devices, including munitions in stockpile.
