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Certain technical aspects of anti-vehicle landmines

Working paper submitted by China

China clearly stated its position on the issue of anti-vehicle landmines last year, at the Second Review Conference of the Convention on Certain Conventional Weapons, and at the first session of the present Group of Governmental Experts. The following paper further elaborates our views on these technical issues.

In theory, the fitting of self-destructing and self-deactivating devices to anti-vehicle landmines could help in resolving the associated humanitarian concerns. This requires substantial financial backing, however, and also takes time. The proposed technical specifications are actually based on those of the existing equipment of certain developed countries: this would place countries in an uneven situation with regard to their obligations and make it particularly hard for developing countries to comply with their obligations.

In this context, it must be stressed that the anti-vehicle landmine issue should not be regarded as limited to the landmine itself as a type of weapon; nor should it be assumed that it will only cost some 20 or 30 US dollars to retrofit an anti-vehicle landmine. Anti-vehicle landmines form part of an entire system of weapons and any changes to them will have consequences affecting all aspects of the system, including the need to redesign the landmine and its remote delivery system, to ensure their production, to equip and train the armed forces in their use in combat, and so on and so forth: the issue cannot be confined to the landmine alone. The process of equipping anti-vehicle landmines with self-destructing and self-deactivating devices and ensuring that they can be remotely delivered is supported by a complex set of associated elements which usually include the delivery and launch systems (such as the laying of mines by

self-propelled rockets or by fighter aircraft), the command system, the communications system, the self-defence firepower system and other components; in addition, they also need to be equipped with the necessary supporting facilities. For those reasons, from the technological standpoint, the retrofitting of remotely delivered anti-vehicle landmines is an issue which goes well beyond the actual landmine itself and involves the entire launching system and all the relevant supporting facilities; it also involves other components, such as the production, maintenance and operation of the system. This means that the process will be both very costly and time-consuming. In addition, a large number of technical problems still need to be resolved.

Where developing countries are concerned, if they accept the proposed anti-vehicle landmine protocol, the first problem they will face will be the financial costs of complying with their obligations.

For most countries, if their remotely delivered anti-vehicle landmines are to meet the self-destruction and self-deactivation criteria in the proposed protocol, they will have to scrap their entire existing stocks of anti-vehicle landmines of the former, cheaper kind, together with their supporting systems. This is because it is even more expensive to retrofit an anti-vehicle landmine system than to purchase a new one, so there is no point in retrofitting.

Anti-vehicle landmines are an important class of defensive weapons, which perform an irreplaceable function among conventional weapons systems. If developing countries are to accept the proposed protocol, they will need, in order to ensure their conventional weapon defence capability, to carry out a comprehensive programme of measures and to make substantial financial investment in producing and fitting out anti-vehicle landmine systems of the new kind and their supporting facilities. The new anti-vehicle landmine systems are much more costly.

Where China is concerned, the costs of design, technical appraisal, materials, processing, purchasing, transport and maintenance, as well as surcharges and many other items, would have to factored into the cost of these new landmines. This would raise the cost of a single landmine to as much as 500-800 yuan renminbi, or US\$ 60-90, without including the cost of the launch system. Moreover, the lifespan of these electronic landmines is shorter than that of the former kind. Thus, to keep stocks at a constant level, the restocking rate would have to be increased. Developing countries would find it very difficult to afford expenditure on this large scale.

For developing countries, improving the overall technical performance of anti-vehicle landmines and developing an effective defence capability are highly complex processes in terms

of their technological requirements and the time that they would take. They involve an entire series of equipment and management-related components, such as long years of scientific research, testing, production, purchasing, transport, stockpiling and maintenance, as well as related supporting systems in such areas as combat, command, teaching and training. None of these can be achieved in a short period of time.

Most of the anti-vehicle landmines owned by developing countries are remotely delivered mines of the old type with mechanical fuses. In order for mines of this type to be self-destructing and self-deactivating, their mechanical fuses must be converted into electronic fuses. From the technological standpoint, however, it is difficult to ensure compatibility between the new equipment and the old and even if it is eventually possible to retrofit them, the technical procedures involved are still excessively complicated. As for the electronic systems and launch systems of the anti-vehicle landmine delivery units, these are even more difficult to retrofit.

For a relatively long period, developing countries would remain confronted with problems posed by the lack of technological resources, such as a shortage of technical expertise, relative backwardness in terms of research facilities and production capacity, limited support capabilities and weaknesses in the tactical operations area. None of these processes - whether the retrofitting or rebuilding of production lines, the training of technical specialists or even the associated task of revising textbooks and training materials and equipment - could be accomplished in a short period of time. If, after all, they were to accept the proposed anti-vehicle landmine protocol, the overall defence capability of these countries could be compromised.

In conclusion, the solution to the problem of anti-vehicle landmines lies not in the negotiation of new protocols, but in the effective enforcement of all the existing legal instruments and efforts to ensure that they have their intended effect. The task to be accomplished now is to persuade more countries to sign up to the amended mines protocol, so as to increase its universality. Those countries which are in a position to accept these conditions may take the lead in implementing the relevant proposals unilaterally, while at the same time providing the necessary financial and technological assistance to developing countries, as a realistic contribution towards solving the problem of anti-vehicle landmines.
