

A NEW GENERATION OF ROBOTS

Jayantha Dhanapala cautions that robots on the battlefield can lead to disaster

In his farewell address on 17 January 1961 – at the height of the Cold War – President Dwight D. Eisenhower speaking with the combined experience of a US Army General and a two-term elected President of the most powerful country in the world, warned his country of the danger of the military-industrial complex.

He said: “This conjunction of an immense military establishment and a large arms industry is new in the American experience. The total influence – economic, political and spiritual – is felt in every city, every State house, every office of the federal government. We recognise the imperative need for this development. Yet, we must not fail to comprehend its grave implications. Our toil, resources and livelihood are all involved; so is the very structure of our society. In the councils of government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist.”

Fifty years later, we continue to live with the problem of more and more lethal weaponry being designed, manufactured and sold under government-financed contracts not only by the military-industrial complex in the US, but in other countries as well. Government contracts power much of the research in laboratories, and many scientists are lured away



from universities to work on weapons manufacture. These weapons are then placed on the market and sold to countries ostensibly for defence purposes, despite their heavy burden on economies, especially in developing countries.

Western democracies have been faced with increasingly popular resistance to their men and women serving in the armed forces, and being exposed to the horrors of combat. The elected leaders of democracies know that their soldiers coming back in body bags have a disastrous impact in terms of electoral politics.

Thus, instead of preventing wars, new types of weapons are being designed and manufactured. They include ballistic missile-defence systems falsely marketed as being impregnable and drones, which are unmanned aerial vehicles, spotting targets for faceless troops to launch their missiles from thousands of miles away. The horrible mistakes caused by the selection of wrong targets as civilians including women and children are killed – as in Afghanistan and Pakistan – are shrugged off as regrettable collateral damage.

The ‘boffins’ in arms laboratories are now engaged in a new and frightening phase of the arms race – the manufacture of fully robotic weapons. The world will thus see completely autonomous weapons with a drastically reduced human participation on the battlefield. This will have huge consequences in terms of

accountability and the implementation of international humanitarian law. Alerted to this weird manifestation of the arms industry, a few NGOs including the Pugwash Conferences on Science and World Affairs will launch a campaign in London on 23 April, to Stop Killer Robots.

Their statement is as follows: “Over the past decade, the expanded use of unmanned armed vehicles has dramatically changed warfare, bringing new humanitarian and legal challenges. Now, rapid advances in

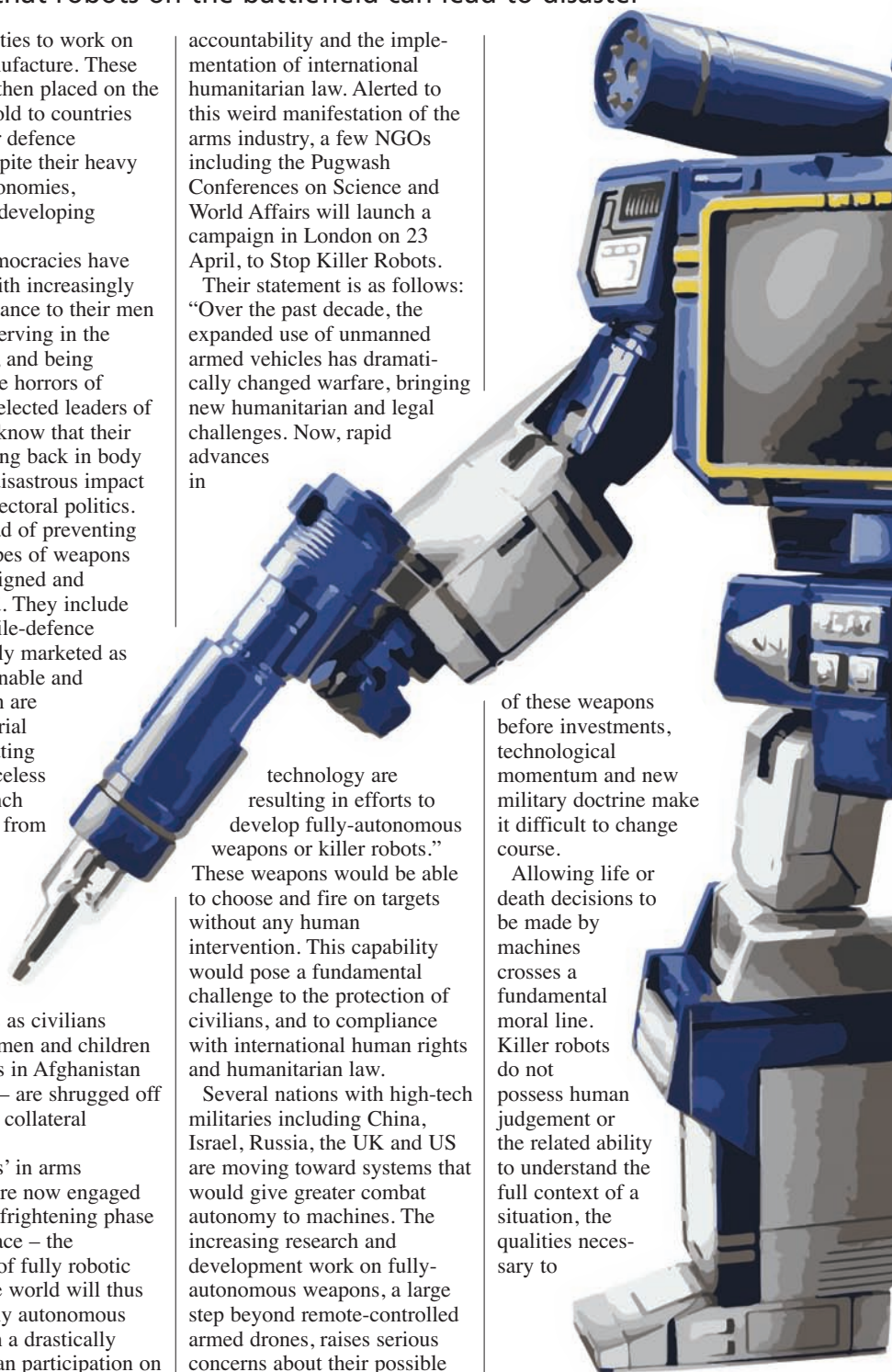
technology are resulting in efforts to develop fully-autonomous weapons or killer robots.”

These weapons would be able to choose and fire on targets without any human intervention. This capability would pose a fundamental challenge to the protection of civilians, and to compliance with international human rights and humanitarian law.

Several nations with high-tech militaries including China, Israel, Russia, the UK and US are moving toward systems that would give greater combat autonomy to machines. The increasing research and development work on fully-autonomous weapons, a large step beyond remote-controlled armed drones, raises serious concerns about their possible deployment. Action is needed now to rein in the development

of these weapons before investments, technological momentum and new military doctrine make it difficult to change course.

Allowing life or death decisions to be made by machines crosses a fundamental moral line. Killer robots do not possess human judgement or the related ability to understand the full context of a situation, the qualities necessary to



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To stop killer robots, a comprehensive, pre-emptive prohibition on their development,

production and use is urgently needed. This could be achieved through an international treaty banning fully-autonomous weapons, as well as through national laws and other measures.

Non-governmental organisations are coming together in cooperation with others to establish an international campaign to stop killer robots. An interim steering committee of NGOs was established in October last year to prepare this campaign, which calls for a comprehensive ban on the development, production and use of fully-autonomous weapons. All interested NGOs are encouraged to endorse this call and join the new global campaign, which will be formally launched in London on 23 April.

Global public opinion must be alerted to this danger and should be mobilised to oppose this new category of weapons. Scientists especially should refuse to work on the design and manufacture of these weapons. The role of the scientist in terms of the Russell-Einstein Manifesto released on 9 July 1955, remembering their humanity, assumes special relevance in a context such as this.

The urgent need for an international code of ethics to govern scientists working in the defence sectors in all countries cannot be overemphasised. The inherent ambiguities in dual use technology are of course difficult and complex. Despite or precisely because of this, a code of ethics and a system of mentoring younger scientists can help to develop moral clarity where legal precision may be difficult to achieve.

R&D programmes in the weapons industry have to depend on scientists. We are faced with the threat of the Second Nuclear Age, when the actual use of nuclear weapons is being contemplated. The Revolution in Military Affairs (or RMA) has produced new generations of conventional weapons and the possible development of new types of weapons including those based on new physical principles. The need is for a code of ethics for application across national boundaries. Such a code will provide guidelines for scientists engaging in any activities that contravene existing treaties and conventions in the arms limitation and disarmament field. Where new weapons are contemplated, the principles of humanitarian law and the protection of civilians must be the norm.

National scientific bodies such as academies of sciences and international scientific organisations must take responsibility for harmonising codes of ethics and for their implementation. Complaints must be filed against a scientist for violating the agreed code of ethics and an inquiry must be instituted. If the verdict is guilty, the withdrawal of professional membership and recognition must follow.

It is only by maintaining the highest standards that we can ensure scientists do not allow their skills to be subverted or exploited. Where scientists have been coerced, especially those in dictatorships, whistleblowing should be encouraged within the code of ethics as part of our common responsibility to protect humanity and human rights.

With the functioning of the International Criminal Court, it would follow automatically that any scientist found guilty in that forum should automatically be struck off the rolls of his profession.

distinguish adequately between

soldiers and civilians on the battlefield, and to evaluate the proportionality of an attack. As a result, they would not meet the requirements of the laws of war.

Replacing human troops with machines could make the decision to go to war easier, which would shift the burden of armed conflict further onto civilians. The use of fully-autonomous weapons would create an accountability gap, as there is no clarity as to who would be legally responsible for a robot's actions: the commander, programmer, manufacturer or robot? Without accountability, these parties would have less incentive to ensure robots did not endanger civilians, and the victims would be left unsatisfied that someone is punished for the harm they experienced.

There are also concerns about the dangers of a fully-autonomous weapons arms race and the unknown ways that killer robots may interact on the battlefield.

Giving machines the power to decide who lives and dies on the battlefield is an unacceptable application of technology. Human control of any combat robot is essential to ensuring both humanitarian protection and effective legal control.