
Arms Technology and Disarmament

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Abstract:-

In 19th and 20th century many scientific and technological developments have occurred in many fields. The positive developments have proved very beneficial for humankind. But the advent of science and technology in the field of armaments have resulted in the invention of weapons of mass destruction. The nuclear weapons, the chemical weapons, the biological weapons, the missiles and conventional weapons development and improvement have created many problems of destructive nature. The new emerging technologies have made the situation worst for mankind. The United Nations General Assembly has made many attempts to protect the world and convert the destructive measures to peaceful measures so that humanity can benefit from it. The need of the time is to develop new scientific and technological devices to destroy the existing weapons of mass destruction and save the mankind, and these technologies should be developed for peaceful purposes.

Great scientific and technological developments have taken place in 19th and 20th century. These developments have encompassed many different fields like transportation, communication, manufacturing, education, trade, healthcare, military and others.¹ The life of people has become quite comfortable with these scientific innovations as various types of machines have begun to perform complex tasks for them.²

¹D.S. Paul and Najmussehar, "100 Essays", (Goodwill Publishing House, New Delhi) P.226.

²Ibid., P.226.

The invention of wheel, petrol and engines have made travelling and transportation very easy because many types of vehicles have been developed and further the invention of aeroplanes and helicopters have revolutionized this field. The invention of computers have changed the life of man and it is a major development in the history of mankind. In the communication field the innovation of radio, television and mobile phones have revolutionized the world. In the field of medical science many diseases have been controlled and serious ailments are resolved or kept under control with the new medical devices.

Compared with the rate of change, the 20th century was a rush to mayhem. With the scientific and engineering communities of several countries committed to the work of war, the variety and deadliness of weaponry made quantum leaps.³ As a result, disarmament today must encompass weapons-nuclear, chemical and biological-with historically unprecedented capacity for mass destruction, as well as conventional weapons, especially small arms that have become massively destructive.⁴ The most dangerous weapons in the world are nuclear, which use the enormous amounts of energy released when the nucleus of a heavy atom such as uranium or plutonium is split in a chain reaction (fission), or when isotopes of a light element such as hydrogen combine in a thermonuclear bomb (fusion).⁵ Due to scientific and technological progress other weapons of mass destruction i.e. chemical, biological and radiological have also become very destructive. With the making of such weapons, today's wars and conflicts have become highly dangerous.

Missiles pose a number of concern for the disarmament community and short-range and less advanced missiles are relatively easy to acquire and use.⁶ The technically advanced states are developing ever more sophisticated intercontinental ballistic missiles capable of delivering nuclear weapons over long distances with increasing accuracy and little warning.⁷ Proliferation is of growing concern globally, but reaching consensus on how to regulate them has proven to be an extremely complicated issue.⁸ The landmines, explosives, guns and other

³BhaskarMenon, "Disarmament: A Basic Guide", (United Nations, New York, 2001), P.12.

⁴Ibid., P.13.

⁵Ibid., P.14..

⁶Melissa Gillis, "Disarmament: A Basic Guide", (United Nations, New York, 2012), P.50.

⁷Ibid., P.50.

⁸Ibid., P.50.

conventional weapons are also becoming more dangerous with the passing of every day due to technological advancements.

Due to the “rapid evolution of cyberspace, microcomputers and associated information technologies”, information warfare is increasingly becoming an offensive tactic to gain competitive advantage over an opponent under the assumption that modern security is highly reliant on technology.⁹ Tactics like shutting down computer networks, infiltrating intelligence information, sabotaging stock transactions or leaking classified information are used to weaken essential networks modernly used to preserve and uphold national security and military force is less important.¹⁰

Many states are developing Information and Communication Technology (ICT) capabilities for military purposes, and the use of such technology in future conflicts between states is becoming more likely and the experts also warn of increasing number of state-sponsored cyber-attacks targeting governments and industry.¹¹ One such example was the Stuxnet Worm, which was created primarily to attack the Iranian uranium enrichment facilities.¹² These weapons can be placed, deployed and controlled from anywhere, so it is very difficult to locate and track the whereabouts of their deployment. The rapid advances in the cyberspace and in cyber weaponry and developments in the fields of artificial intelligence and automation in weaponry (for example, drones, robots and fully autonomous weapons) present challenges to international security and the existing United Nations machinery and the UN is engaged in work at multiple levels to address the implications of these new technologies.¹³

The United Nations General Assembly through a resolution recognized that scientific and technological developments can have both civilian and military applications and that the progress in science and technology for civilian applications needs to be maintained and encouraged and it underlined the keen interest of the international community to keep abreast

⁹Roger C. Molander, Andrew S. Riddile, and Peter A. Wilson, “Strategic Information Warfare: A New Face of War”, (Santa Monica, CA:Rand, 1996), summary.

¹⁰James A. Lewis, “Assessing the Risks of Cyber Terrorism, Cyber War and Other Cyber Threats”, (Centre for Strategic and International Studies), Last modified December 2002, P.3.

¹¹Melissa Gillis, “Disarmament: A Basic Guide”, (United Nations, New York, 2017), P.104.

¹²Ibid., P.105.

¹³Ibid., P.103.

of the latest developments in science and technology of relevance to international security and disarmament and to channel scientific and technological developments for the beneficial purposes.¹⁴ It also stressed the need to regulate the transfer of technologies for peaceful uses, in accordance with relevant international obligations, to address the risk of proliferation by states or non-state actors.¹⁵ It also invited the member states of the United Nations to continue efforts to apply developments in science and technology for disarmament related purposes, including the verification of disarmament, arms control and non-proliferation instruments, and to make disarmament technologies available to interested states.¹⁶ The General Assembly also recognized that information and communication technologies present new opportunities and challenges and that there is a pressing need to address the major impediments that developing countries face in accessing new technologies, stressing the need to address prevailing challenges to bridge the digital divides, both between and within countries, using a multidimensional approach that includes speed, stability, security, affordability and accessibility for each.¹⁷

The science, technology and innovation, including environmentally sound technologies can play a vital role in development and in facilitating efforts to address global challenges, such as efforts to eradicate poverty, achieve food security and nutrition, enhance access to energy and increase energy efficiency, fight diseases, improve education, protect the environment, accelerate the pace of economic diversification and transformation, improve productivity and competitiveness, peace, justice and strong institutions and ultimately support sustainable development.¹⁸

To achieve meaningful disarmament and arms control, not only the number of weapons, but also their quality must be limited¹⁹ and to dismantle and remove the existing stockpiles of weapons of mass destruction new technologies must be developed as early as possible.

¹⁴The General Assembly Resolution 72/28, December 4, 2017.

¹⁵Ibid.

¹⁶Ibid.

¹⁷The General Assembly Resolution 72/200, December 20, 2017.

¹⁸The General Assembly Resolution 72/228, December 20, 2017.

¹⁹Dietrich Schroer, "Quantifying Technological Imperatives in Arms Race", in David Carlton and Carlo Schaerf (ed) 'Reassessing Arms Control', (Macmillan Press Ltd., London, 1985), P.60.