India's Defense Needs in a Technological Scenario

POINTS TO DEVELOP 1. Technological advancements have revolutionized means of warfare.

2. Though milestones have been achieved in missile and nuclear technologies, some basic areas of warfare need to be developed.

Needs in the new nuclear scenario.

Use of information technology for strategic advantages.

Counter – measure for protection against chemical and biological warfare need to be developed.

Defence R&D should be strengthened.

In the last century. Science has transformed the world in almost all areas of society. It follows that the corresponding economic, political, demographic and technological changes would also affect the military factor. In fact, the demonstrated relationship between the advance of science and technology and defence is so strong that the future of warfare has been revolutionised. The world today, particularly the developed world, has progressed far ahead in the technological advancement of war-fighting. History has demonstrated that nations that fail to anticipate and adapt to change get left behind.

India's defence industrialisation and scientific knowhow is widely acknowledge. It has, however, not attained the required degree of success as a self-reliant sustainable entity capable of meeting the needs of the country's armed forces and steering itself into the next millennium. Although the Defence Research and Development Organist ion(DRDO) has achieved remarkable milestones in the area of nuclear and missile technology, it has failed to meet the basic needs of the infantry soldier, as was demonstrated by the recent war in Kargil. Priorities have gone wrong somewhere and unless defence planning and management strike the right balance, the potential of India's technological base may not be able to meet its defence needs. In the current and future technological scenario India has a wide spectrum of needs to cover. Some of these are- nuclear warfare, onformation warfare, satellite technology, missile technology , chemical and biological warfare, high- altitude warfare, desert warfare, air and naval warfare, counter-insurgency , mobile warfare, high spped communications, underwater technology and cyber warfare. After carrying out its nuclear tests in May 1998 and announcing that it had acquired a minimum nuclear deterrent, India committed itself to a 'no first use' policy, thereby committing itself to have the capability to sustain a first strike by a nuclear power and then to strike back i.e., to have a 'second strike' capability. This would spell out the following needs:

- 1. Command and control systems with technological infrastructure to include C4I, i.e., command, control, communication, computer and intelligence systems.
- 2. Widely dispersed command centers with duplicated command and control systems.
- 3. A malty-delivery system to include missile delivery, air delivery, and delivery by sea.
- 4. Widely dispersed and well-protected deployment sites-preferably underground hardened silos.
- 5. An integrated intelligence system.
- 6. Communication infrastructure.

India first needs to ensure that its nuclear weapons and its delivery systems are invulnerable to a first strike by both of them. Secondly, it should have the capability of inflicting unacceptable damage on the enemy. In this respect, not only is the development of the medium range missile 'Agni' essential but what is also needed is a focus on its ability to strike targets even more accurately. In order to make its nuclear weapons invulnerable to first strike India will have to disperse its nuclear strike forces, create a strategic air command, protect nuclear weapons sites develop nuclear submarines and deploy anti- ballistic missiles.

Warfare today has changed radically due to the advent the information revolution. With the use of computers and modern communications, it has become increasingly important to ensure acquisition and security of information. The rapid growth of technologies to acquire and store information and the promise of improved command and control have generated the idea of 'dominance in the field of information'. The ability to see, hear and understand the enemy's command and control systems, intelligence sources and sensors have produced a new discipline known as 'information warfare'. The information revolution and its related technologies are affecting all three pillars of national power, i.e., political, military and economic. India with its cast talented scientific population needs to overcome potential vulnerabilities, times the microchip and use it to sustain tactical and strategic advantages that are available in information warfare. Broadly, these include dedicated military satellites for surveillance and communications, reconnaissance and target acquisition systems, intelligence gathering and decision support systems, airborne early warning platforms, digitalized mapping, etc.

Although India has foresworn the use of chemical and biological weapons, there are reports that chemical and biological weapons, popularly known as the 'poor man's nuke', are increasingly being sought by certain governments as an alternative to or in addition to nuclear weapons. Therefore, India needs to recognize the growing threat of chemical and biological weapons attack and take necessary steps for provision of counter-measures to protect its defence forces and civilians against such weapon of mass destruction.

Rapidly advancing technology and self-reliance go hand in hand. Keeping this in view, the DRDO needs to tackle a variety of new challenges in the field of basic battlefield needs. Higher levels of self-reliance in crucial sectors can only be sustained by close collaboration between the defence forces who have to combat disruptive forces in a verity of terrain and weather configurations and the research and development personnel who have to meet critical needs. Goods skills in design and manufacture lapsed after operational exigencies compelled direct buys form aborad and also resorting to licenced manufacture. Although the defence force have been advocating their needs over the years in basic items like rifles, carbines, helmets, snow-boots and gloves, snow goggles, sound ranging equipments and other basic equipments for specialized operations, and that the DRDO has failed to deliver. This was dramatically demonstrated during the recent Kargil conflict when last minute purchases form abroad had to ve resorted to while the battles were being fought. The euphoria generated over success in the field of missile technology now needs to be transferred and transformed into affective capabilities for design, development and production of more basic needs. Joints ventures could initially be undertaken with selected foreign manufacturers leading eventually to substantial self-reliance. China's success in this area to be emulated.

The evolution of new concepts of fighting is a direct outcome of the impact of technology on the conduct of land, sea and air warfare. The urgent needs of India's defence forces in present and future conflicts are – precision weapons, vastly improved means of real-time information, surveillance and target acquisition and improved clothing and equipment for high-altitude warfare. Advances in communications technology, computer , information systems, surveillance and target acquisition systems are critic cal for command and control. Equally important is the utilization of the same means to destroy the enemy's means of command and control. Failure to meet these needs will have disastrous consequences.

As we enter the new millennium, there should be no doubt that new technologies are transforming the way we conduct warfare. To win, we need to adopt new war-fighting techniques, and for that, our need for upgraded technology is

absolutely essential, existing gaps in these areas need to be eliminated without further delay.