education were based on the Report of Dr.S.Radhakrishnan University Education Commission. In the ***Second Plan*** (1956-61), emphasis was on basic education; expansion of elementary education; improvement in the curriculum, science education and quality of higher education. The recommendations of the Dr.A.L.Mudaliar Secondary Education Commission were implemented. ***The Third Plan*** (1961-66) concentrated on science education for laboratories and equipments and special courses on astronomy, astro-physics, applied geology, animal genetics and other applied sciences.

9.10 Science and Technology

9.10.1 Science Policy

Nehru was a student of science and votary of technology. He wanted the people to be imbued with 'scientific temper'. He considered science and technology as a sure cure to poverty, illiteracy and superstition with a view to transform the traditional society into modern one. Nehru initiated a number of policy measures in the fields of science and technology. ***India's science policy*** is contained in the ***Science Policy Resolution*** passed by the Parliament in 1958. The Science Policy is based on 4 cardinal principles: 1) to develop scientific outlook among the people; 2) to keep abreast of latest development in scientific thought and practice; 3) to acquaint the country with the developed and developing science and technology; and 4) to apply technology consistent with the highest ideals of the age. In short, the essence of the Science Policy was to foster and sustain the cultivation of science and technology in all its aspects – basic, applied and educational-besides encouraging individual initiatives.

9.10.2 National Physical Laboratories

On 4 January 1947, Nehru laid the foundation stone to the first ever Indian National Physical Laboratory. This was followed by 17 other national research laboratories in different fields of scientific endeavour. Nehru himself was the Chairman of the ***Council of Scientific and Industrial Research,*** which guided and financed the national laboratories and other institutions of science. In the midst of communal turmoil, Nehru made it a point to attend the meeting of the council and established the tradition of the Prime Minister presiding over the council and attending the annual sessions of the Indian Science Congress.[16] In the words of Nehru "one of the biggest things that we have done since independence is the development of our magnificent national laboratories all over India".[17]

9.11 Atomic Research and Development

9.11.1 The Atomic Energy Commission, 1956

Nehru laid the foundation for ***Indian Nuclear Energy Programme*** with the invaluable support of ***Homi Jehangir Bhabha,*** an eminent nuclear scientist. The ***Atomic Energy Act*** was passed in April 1948. Realising the incalculable importance of nuclear energy for peaceful and developmental purposes, Nehru established the ***Atomic Energy Commission*** on 10 August 1948, with Homi J.Bhabha as its Chairman. The basic objectives of the Commission were to 1) develop atomic energy as a source of electricity, and 2) develop its uses for agriculture, biology, industry and medicine. In other words the commission was intended to develop nuclear energy for peaceful purposes and to launch a full-fledged atomic energy programme in the country.

9.11.2 The Atomic Energy Establishment

Dr.H.J.Bhabha was the Chairman of the ***Atomic Energy Commission*** till his death in 1966. The ***Atomic Energy Establishment*** was set up in 1954 at Trombay, near Bombay.[18] India's first nuclear reactor, also the first in Asia, became critical in August, 1956. In 1957, the Atomic Energy Establishment was renamed ***Bhaba Atomic Research Centre*** (BARC).[19] The Atomic Energy Commission had set up 5 Atomic reactors named Apsara, Zerlina, Circus, Purnima and Dhruvah. "By the time China exploded a nuclear device on 16, October 1964, India possessed advanced nuclear research and power programs and had even exporting radioactive material".[20]

9.11.3 Nehru's Nuclear Policy

Atoms for Peace

India became Independent just a couple of years after the dropping of atom bombs on Hiroshima and Nagasaki, Japan (6 and 9, Aug.1945). The unbelievable devastation and unprecedented destruction and loss of life caused by the atomic attack left their 'indelible impact on India's leadership, which decided to keep India free from atom bombs. Nehru was passionately anti-bomb and the chief opponent of the nuclear weapons programme. He considered atom bombs as 'frightful engines of destruction'. Moreover, the post-Independence India desperately needed socio-economic development. Nehru, therefore, decided to use nuclear technology for peaceful purposes. ***'Atoms for Peace'*** was the essence of his nuclear policy.

Nehru, by conviction, opposed the nuclear energy being used for the manufacturing of atom bombs. He concurred with Dr.Homi Bhabha, India's

pre-eminent nuclear scientist, when he suggested that nuclear energy could be profitably used to meet the developmental needs of the country. Nehru called for the suspension of nuclear testing, the ending of the nuclear arms race, and the abolition of nuclear weapons. He had a distaste for these destructive devilish devices. In fact, the first clarion call for a total ban on nuclear tests came from Nehru in 1954. "Even after his death in 1964, Nehru's practical and moral arguments against nuclear weapons remained powerful".[21]

9.12 Space Research and Development

A modest but firm beginning in space research and development was made in the 1960s. In 1962, the ***Indian National Committee*** for Space Research was constituted and the ***Launch Vehicle Development Programme*** was started. A Rocket launching Facility was established at Thumba.[22] On 21 November 1963, the ***Nicke Apache Rocket*** was launched with sodium vapour payload. Since its inception, space research and development has been guided with great fore-sight to apply space technology for finding solutions to the problems of space and its utility. Self-sufficiency in space science and technology has been the core content of space research. The space research and development has gone a long way since then.[23]

9.13 Defence System

9.13.1 Inherited

On the eve of Independence, India inherited a well-organised, highly disciplined and professional military from the British. Soon after the acceptance of the Partition Plan on 3 June 1947, fixing 15 August for the Transfer of Power, steps were taken to devise the defence system to suit the requirements of the Sovereign State of India. An ***Armed Forces Reconstruction Committee*** was constituted to divide the Army, Navy and Air Force and to establish in India and Pakistan, a separate operational command; the administrative control over the forces was to rest, for some time after 15 August, with field-Marshal Auchinleck; and he was to be answerable to a ***Joint Defence Council.*** The Armed Force played a conspicuous and crucial role during the Indo-Pak conflict in 1947-48.

9.13.2 Defence Policy and Organisation

Since Independence, India's defence policy has ***two clear-cut objectives;*** 1) to promote and sustain durable peace in the sub-continent; and 2) to safeguard the country from aggression. The President of India is vested with the authority of the Supreme Commander of the Armed Forces. The Union Cabinet exercises the responsibility for national defence. The Armed Forces

consist of the ***three main services:*** 1) the Army; 2) the Navy; and 3) the Air Force.

The Army Headquarters is located in New Delhi. It is headed by the Chief of the Army Staff. The main auxiliaries of the Armed Forces are the Territorial Army, Coast Guards, Auxiliary Air Force and National Cadet Corps. ***The Navy*** with its Headquarters in New Delhi functions under the Chief of Naval Staff, assisted by Principal Staff Officers. It has three Naval Commands - Western at Bombay; Eastern at Vishakapatnam; and Southern at Cochin. There are two navel fleets the Western and the Eastern. It shoulders the responsibility of defending the nation's maritime interests. ***The Air Force*** has its Headquarters in New Delhi. It is headed by the Chief of the Air Staff. The IAF maintains the highest level of vigilance and combat worthiness; provides air defence, air interdiction, reconnaissance and offensive air support; and assists civil authorities during national calamities.

9.13.3 Defence Training

Defence training is imparted to defence recruits and personnel, by defence schools, academics and colleges. ***Sainik Schools,*** started in 1961, are joint venture of the central and state Governments. They are fully residential, select meritorious students and educate and train them to become eligible for recruitment to the officers cadre in the Defence Forces. Other important training centres are the Officers Training Academy, Chennai; National Defence Academy, Khadakwasla; Indian Military Academy, Dehradun; and Rashtriya Indian Military College, Dehradun.

9.13.4 Production and Supplies

The primary purposes of the ***Department of Defence Production and Supplies*** are to equip the armed forces with the latest equipment and weaponry systems; and to contribute towards modernization of armed forces. The ***Ordinance Factories*** play a crucial role in equipping the armed forces with weapons, arms, ammunitions, tanks etc. The ***Supplies Wing*** functions under the Ministry of Defence. It is the nodal agency for evolving purchase policies for the Ministry of Defence.

9.13.5 Defence Research and Development

In 1958, the ***Defence Research and Development Organisation*** (DRDO) was set up, amalgamating the Defence Service Organisation and some of the technical development establishments. The DRDO has developed a large

number of defence systems, equipment and other products as per the requirements of the Armed Forces.

9.13.6 Role of Defence

Indian Armed Forces are highly disciplined, professional and non-political in nature. They function under civilian control with operational authority. After the India-China War of 1962, the Armed Forces were modernized, secularized and further strengthened. Their apolitical role has strengthened the stability of India's democratic institutions, national unity and integrity. Above all, their all-India character and ethos safeguard the country from military intervention in political affairs.

9.14 Assessment

The minds of Nehru and the Founding Fathers of the Constitution of India were on the same wave-length regarding the need for using education as an instrument of social, economical, scientific and technological progress. Firm foundation was laid for the revision, re-structurisation and modernization of primary, secondary and tertiary education during the Nehru Era. Since education was the state subject, the expansion and excellence of education at all levels was neither uniform nor desirable. However, progress in professional education-engineering, management, agriculture, medical, legal and physical-was praiseworthy. Nehru knew the inadequacies of the education system and it would be unfair and unrealistic to expect him to remedy them during his life-time. It must, however, be recognized that India's educational success was in no small measure due to the innovative initiatives introduced by the Nehru Government.

Independent India witnessed unprecedented surge and success in the fields of science, technology, nuclear power and space research. Nehru created one of the best science and technology infra-structure, education, training and research systems in the non-western world. Nehru's intense interest in Science and Technology bore ample fruits later. "A major achievement of the Nehru era was in the field of scientific research and technological education".[24]

Nehru's nuclear policy and determined efforts towards application of nuclear energy to peaceful and developmental purpose enabled India "to go from dung power to nuclear power in a single step".[25] During the Nehru years, India embarked upon an extensive program of civilian nuclear Research and Development (R&D). The ***Indian Atomic Energy Commission*** (AEC) stipulated