TECHNOLOGY AND DEVELOPMENT

Unit structure:

14.0 OBJECTIVES

1. To understand the stages in growth of technology
2. To analyze the role of technology in modern life

14.1 INTRODUCTION

Technology is the application of scientific knowledge. It is the sign of how man‘s knowledge of nature has increased and how his wants have diversified. Every technological invention has brought changes in man‘s ways of life in a small or a big way. Technology is thus one of the ways to measure the progress of mankind.

14.2 HISTORY OF TECHNOLOGY

The history of technology is the history of inventions of tools and techniques. It is the discovery of these inventions that changed the ways of human life. Man reached the present stage after passing through several stages of evolution. In every stage he devised new methods for survival. The primary stone tools were the first such attempt at using his intelligence and knowledge to sustain better than rest of the living beings. First fire and later wheel were

the inventions which changed the social, economic, cultural and also political conditions in society.

14.2.1 Pre-historic period:

Before man could store his knowledge in the form of written records he passed knowledge from one generation to another orally. During the prehistoric period, man‘s knowledge was restricted to the use of stone. Stone tools and fire were the most important technological development of this period. The nature of stone tools evolved gradually. They were produced with more finesse and details. Man also developed the knowledge of making clothes from animal skin.

14.2.2 Proto-historic period:

In around 9000 B.C. man started practicing agriculture. He started domestication of animals on a large scale. One of the most important technological developments of this period is the technology of extracting metals from their ores through smelting. Numerous tools of copper are found belonging to this period. This technology is taken one step further with the knowledge of producing alloy. Bronze tools have found in several places at this level. Stone tools continued to be used. Evidences of well planned houses, canals and burials show man‘s knowledge of architecture. People had international trade relations during this period. Indus valley civilization traded with the Sumerians. Seals from both civilizations give proof of advanced boat making technology. Other most important technological marker is pottery. The technology of pottery making forms the base of development of cultures in India. Man learned the skill of writing during this period. The Egyptian civilization was pioneer in several scientific, architectural and biological studies.

14.2.3 Iron Age:

The discovery of iron is another important milestone of man‘s technological progress. The use of iron and the quality of iron weapons belonging to this period prove the development of metal smelting technology. Use of iron in equipments further advanced agricultural production. Control over iron resources and iron weapons became sources of political power.

14.2.4 Historical period:

The period from when written sources for study are available is known as historical period. All across the world man had made numerous technological innovations during this period. This period can be further divided into three sections as follows:

a) Ancient: The Chinese invented the iron plough, paper, the magnetic compass and gun powder. The ancient Greeks made remarkable progress in mechanical technology. They were pioneers in several aspects of mathematics, astronomy and medicine. They invented the watermill. In India one can find inventions in the field of medicine, mathematics and sculpture during this period.

b) Medieval: In the medieval period technology advanced further because of growth of science as a separate branch of study. Several schools and colleges, dedicated to the development of research in science, were established. The Renaissance spirit gave encouragement not only to scientific experiments but also scientific thoughts. The creators of modern science belong to this period. Several laws and theories in physics, biology, chemistry, astronomy etc. were established during this period. Development in technology of weapons and ammunitions changed the system of military warfare. The invention of printing press revolutionized the spread of knowledge and information. New styles of architecture developed.

   In the later medieval period, Europeans started venturing out to explore new sea routes to Asia. This spirit of adventure and exploration was supported by development in ship building technology, cartography and equipments to measure wind, longitude etc.

c) Modern: The industrial age is said to be the symbol of modern age. New technology based on iron machines running on steam or coal was developed. It led to creation of industries, large scale production, and change in economic conditions in society. Cotton industry developed into a huge enterprise. Steam engine increased the output of coal from mines. It led to the beginning of transport revolution. The 19th century saw further more technological inventions. The discovery of electricity led to transformation in transport, communication and general living. Agriculture machinery, production of steel and its large scale use in construction and growth of chemical industry were some of the important developments of this time.

The 20th century is considered the age of technology. During this period technology became the symbol of development for a country. Household living became comfortable with electrification, new appliances like fridge, washing machine and advanced systems of water supply. Communication got easier and faster with telephone, radio and television. Transport became faster with cruise ships and most importantly airplanes. Computer technology transformed business, communication, even medicine and transport.

14.3 GROWTH OF TECHNOLOGY AND ITS USE IN MODERN LIVING

Technological inventions are solutions to existing problems. Technology makes living easier and comfortable. It helps in economic progress, industrial growth and also helps in the best use of available resources. The relationships between the various classes of society also change due to technology. Especially in developing countries like India there is a need for cost effective technologies which can solve problems of maximum of the population and can reach the remotest part of the nation. Such technology can help better network of essential services across the nation. Some of the fields in which technology has brought about effective changes are as follows:

a) Communication: Mobile phone revolution has lessened the distance between people across the nation. With affordable and easy to use handsets from a range of companies and cheap recharges available, even the poor and not so educated people have been able to connect to each other. Internet has connected people around the world through emails and social networking sites.

b) Education: The field of education has benefitted immensely from technological progress. Fast and large scale printing technology and e - learning is some of its benefits. The internet is an excellent source of information for both teachers and students to update their knowledge. Online courses are also offered by several universities. The various aspects of technology themselves have become new areas for students to pursue their careers.

c) Medicine: New technologies have made healthy living possible and also increased life expectancy rates. Use of laser technology has made operations simpler and less painful with less recovery time as well. Some operations can be made available at affordable rates to the poor too; for example cataract operations.

d) On line transactions: The system of online payment has facilitated in fast track transactions in various fields. Booking of Railway tickets, Air tickets, bank transactions through e-banking, shopping online have become easier and hassle free due to online transactions. This has greatly saved on the time and efforts of the people.

e) Industries: Growth of various industries in less developed regions of the country has helped in increasing employment in these regions. This has increased the economic conditions

of such regions and reduced regional imbalance in the country.

f) Agriculture: Agriculture has benefited due to advanced agricultural machinery, highly advanced hybrid seeds and also pesticides and fertilizers are available at subsidized rates for the farmers. Better irrigation facility has helped tackle the problem of irregular pattern of agriculture in several regions.

g) National security: Advanced arms and ammunition has led to better equipped army to fight terrorists and invaders. Intelligence equipments connected to the satellite help to protect borders and track enemies. Security machines, CCTV cameras in public places and advanced explosive detection machines have also increased the strength of regional police and investigating agencies.

h) Other areas: Several other areas like infrastructural development, commerce, land distribution, disaster managementetc are also affecting the growth of society positively.