CONTENTS

S.No.	TOPIC	Page No.
1.	Development Process	1 – 21
2.	Rural Economy	22 – 36
3.	Globalisation of Economy	37 – 56
4.	Financing Method & Case Studies	57 – 88
5.	Technology for Rural Area	89 – 96
6.	Deforestation and Renewable Energy	97 – 124
7.	Rural Industries	125 – 152
8.	PMGSY and RTI Act	153 – 162
9.	Technology Assessment	163 – 170
10.	Application to Social Science to Industry	171 – 198
11.	Project Planning, Appraisal & Feasibility	199 – 245
12.	Environmental Degradation and Resource Depletion	246 – 267
13.	Depletion of Natural Resources due to Population Growth	268 – 289
14.	Radioactive Waste Management	290 – 299
15.	Development of Science & Technology	300 – 320

1 DEVELOPMENT PROCESS

THEORY

1.1 | SOCIAL DEVELOPMENT

Social development is intuitively related with those changes in the system that improves the general well-being it's people.

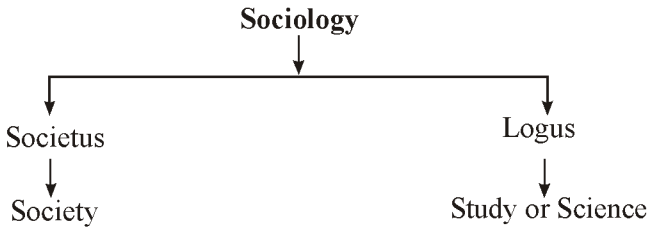
Development is a natural process that is related with an improvement of society. Social development on the other hand, is related with changes in the social environment that curbs this tendency. We sustain that social, economic, institutional and cultural development are related with a balance of power and interest with the population, which promotes the general good over the personal good, thus improving the general well-being the population.

Social development doesn't depend on any political, social or economic ideology. Development is a natural occurrence in the physical world and so it is social development. Societies can either develop remain stationary or regress depending on inhibiting or facilitating internal factors to the system or external factors to the surrounding environment.

1.2 | SOCIAL ENGINEERING

"Social Engineering" is not a new term. It comes from the field of social control. Social Engineering can refer to the process of redefining a society or more correctly, engineering society, to achieve some desired outcome.

The term can also refer to the process of attempting to change people's behaviour in a predictable manner, usually in order to have them comply with some new system.



Example: (i) Indian Society

(ii) Western Society

Difference in terms of dress, customs and conventions.

Note: *The process of change in structure of society is called dynamism.*

1.2.1 | Sociology

Sociology is a body of learning about society. It is a description of ways to make society better. It is social ethics, a social philosophy.

A simple definition of sociology here is that it is the study of society and culture. The concepts of "Society and culture" are central in sociology.

Distinguishing between Society and Culture

- ***Society :*** A group of people who lives within some type of boundary territory and who share a common way of life.
- ***Culture :*** Culture is common way of life shared by a society of group.

Thus Sociology may be generally defined as a social science that studies such kind of phenomena as:

- The structure and function of society as a system.
- The nature, complexity and contents of human social behaviour.
- The fundamentals of human social life.
- Interaction of human beings with their external environment.
- The indispensability of social interactions for human development.
- How the social world affects us etc.

Definition of sociology by different Sociologist

(i) ***George Simmel*** Opines that it is a subject which studies human inter-relationship.

(ii) ***Giddins*** is of view that "Sociology is Scientific study of Society."

(iii) ***Max Weber*** has viewed sociology as "Science which attempts imperative understanding of social actions."

(iv) ***Sorokin*** is of the opinion that sociology is a study first of all the relationship and correlation between various classes, second between the social and non social aspects of life and third it studies general characteristic common to all classes of society.

(v) ***Ogburn*** has said that, "Sociology is concerned with the study of social life and its relations to the factors of culture, natural environment, heredity and group."

(vi) ***Durkheim*** while defining sociology has said that "it is the science of collective representation."

1.2.2 | Development Process

Development means increase in both material and non-material things necessary for existence and improvement of man living on this planet. Man includes all types of species process means ways and methods adopted and a number of input that are required by the society to achieve the development.

The material and quality of life which includes level of education, hygienic conditions of life, social and ethical values are equally important in the process of development.

"Development or Process Means Change"

According to world development report (given by world bank in 1991), a better quality of life in world's poor countries calls for higher income-but it involves much more. It encompasses better education, higher standards of health and nutrition, less poverty, a cleaner environment, more quality of opportunities.

Development is understood in terms of the following :

- Social
- Political
- Economic
- Environmental

Social development, process of growth and development of the capacities of the people and the improvement of society in which they live in order to obtain a better life for all.

Political development, process of increasing rationality, equality, participation and secularization in the political system.

Economic development, discussed in terms of economic growth although economist were aware of non-economic factors.

Development means rising trend of real national income over a long period of time. It means that if the national income of a country which is also called GNP (Gross national product) increases then the country will be materially well off, because the nation shall have more and more things of day to day life upon which standard of the living of the people depends.

If the national income of a country increase say x-₹ crores to y-₹ crores per annum and does not get distributed properly among all the people in a desirable manner then it is not called development, so increase in per capita income that is the income of per person is essentially an index of the development. This system ensure balanced development.

Real development in which increase in the GNP (Gross national product) and distribution simultaneously

- There should be sustainable (For long period of time) development.
- The development should be consistent and persistent. (Continuous increase in real per capita income)
- Output produced should proper ratio of capital goods and consumer goods.

Example : **What is development process?**

Solution: Development means change. The term development and growth are one and the same thing. Both can be used interchangeably in the discussion and explanation of this chapter. Development means rising trend of real national income over a long period of time. It means that if the national income of a country which is also called GNP (Gross **National Product)** increases then the country will be materially well off because the nation shall have more and more things of day to day life upon which the standard of living of the people depends. One thing is worth mentioning here that national income (income of the nation) is the monetary expression of material and non-material things called GNP. Material things are those which can be touched like furniture, machines and a large number of non-material goods like services etc. But this is not the perfect definition of development. A few points mentioned below must necessarily be taken into account with regard to the term development used:

(i) If the national income of a country increases say from ₹500 crores to ₹1000 crores per annum and does not get distributed properly among all the people in a desirable manner then it is not called development. So increase in per capita income that is the income of per person is essentially an index of the development. This system ensures balanced development.

(ii) Secondly, an increase in national income and per capita income should be real which means price should be controlled. If the per capita income of people increases and at the same time cost of living index goes up then it will not be called development but stagnation or may be retardation because the standard of living of the people shall remain the same. So far real development is concerned there should be an increase in the GNP and the distribution should be even also.

(iii) Thirdly, an increase in real per capita income should be over a long period of time as fluctuating change (that is in one year rise and an another year fall) do not constitute real development. There should be sustained development.

(iv) Fourthly, development should be consistent and persistent. In other words there should be continuous increase in the real per capita income. And this increase should be over a long period of time.

(v) Lastly, the output so produced constituting GNP should include the proper ratio of capital goods and consumer goods.

Keeping all the above points in view a concise definition of development could be that development or growth means rising trend of real per capita income over a long period of time with controlled cost of living index and population growth with reduction in inequalities of income and ensured increased standard of living and social welfare of people. The basic parameters described with regard to development or growth are life-sustenance (provision of basic needs of people), self-esteem (feeling of self respect) and freedom.

1.2.3 | Parameters (Index) of Social Economic Development

I. Increase in real per-capita income :

- This is national Income divided by Population.

II. The extent to which national income has increased and what growth rate of this income.

III. What is the share of National income coming from

- Primary Sectors
- Secondary Sectors
- Tertiary Sectors (Services) of the country.

IV. Extent of

- Urbanisation
- Literacy
- Education Rate

V. Extent of infrastructure Facilities such as

- Transport & Communication
- Energy
- Water supply and
- Electricity etc.

VI. To what extent application of Science and Technology is made and what is the magnitude of research in the various field.

VII. What type of man power the country has been able to possess. In other words how many engineers, doctors and professional do a nation has.

VIII. There should be multi dimensional development and people should have scientific temperament and cultural attitude.

1.3 | FACTORS DETERMINING DEVELOPMENT PROCESS

1.3.1 | Natural Resources

This is the principal factors of economic growth and process of development. Land is the main natural resources and includes

- Fertility of land
- Composition
- Minerals
- Water resources
- It's situation
- Forest wealth
- Climate
- Oil resources etc.

Development will be fully if proper utilization of resources done.

Japan is one such country which is deficient in natural resources but is one of the most advanced countries of the world because it has been able to discover new uses for its limited resources.

1.3.2 | Human Resources

Human resources development refers to now many trained, educated and skilled people do we have in our country is an important issue because it is only this resources depends.

Human capital is the process of increasing knowledge, technical know-how, efficiency, skill and other capacity of the people of the country.

1.3.3 | Capital Formation

Process of capital formation depends upon existence of real savings, existence of credit financial institutions to mobiles saving and using these saving for investment in capital goods.

The process of capital formation leads to increase national output in a number of ways.

1.3.4 | technological Factors

Process of development needs technological changes as the world is developing very fast. Changes in technological factors leads to increased level of labour productivity.

1.3.5 | Social Factors/Non-economic Factors

This factor includes

- Cultural attitude
- Social values and institutions
- Caste system institutional changes
- Political and administrative changes have much to do with the process of development.

1.3.6 | Contribution of Science and Technology Towards Development :

- Increase productivity qualitatively and quantitatively in both agricultural and industrial sector.
- Upgrading the existing industry to make them domestically attracted as well as export competitive.
- Generation of energy
- Advancement and improvement in defence capabilities
- Exploration and extraction of new natural resources
- Conservation of resources
- Development and growth of human resources including food, cloth, health, sanitation hygienes, nutrition and water supply.
- Reduction in regional imbalance.
- Employment generation and removal of poverty.
- Development of innovation and discoveries.

1.4 | DEVELOPMENT CRITERIAN

There are two issues related to development of process.

- Quantitative aspect
- Qualitative aspect

QOL = Quality of Life

PQOL = Quantitative aspect or Physical quality of life.

Balance between the two is necessary for development quality of life (QOL) is quality aspect whereas PQOL is called quantitative aspects.

Quality aspects in terms of numerical expression

- In a schools, colleges, institutions, universities, higher learning centre depends on
  - Number of students acauiring education
  - Teacher imparting education
  - Pass percentage in the field of education
- **In the field of health**
  - Number of medical colleges
  - Hospitals
  - Dispensaries
  - Number of doctors after patients
- **In the field of Production**
  - Number of goods produced both household and producer goods
  - Quality of goods sold
  - Number of machine installed
  - Amount of wages and salaries paid to the workers.

It means if the number of things increase then the country has progressed and developed in terms of physical quantity.

The changes in number from time to time is depicted by tables and graphs so that people understant about the development related to quantitative aspect.

1.4.1 | MEASUREMENT OF QUALITY OF LIFE (QOL)

Quality of life is an inclusive concept which covers all aspects of living including material satisfaction of vital needs as well as more transcendental aspects of life such as personal development, self-realisation and a healthy ECO-system.

QOL = Quality of thing produced. [✓]

Number of things produced. [×]

Quality of life give much importance not to numbers alone as mentioned above but the quality of things so produced.

So it is immaterial to think as how many institutions and educational centres have been opened, what matters is the quality of students coming out or passing out from these institutions.

- Are they intelligent
- Disciplined having mental abillties and aptitudes.
- Whether their faculties and talents have been fully developed?

Can they after completion of their education inspire other with their personal qualities.

Similiarly in the field of health it does not matter how many doctors do we have but what matters is the qualities of doctors produced.

Such that, quality of life is related to such things as increase in expectancy of life, better food, skill formation etc.

1.4.2 | Determinants of Quality of Life

- Health
- Education
- Culture and time use
- Housing
- Environment
- Public Safety
- Employment and Public life
- Income, consumption of wealth
- Social welfare and popular participation

It is concluded that development process needs both quality and quantity to be rationally balanced.

Example : **How the Quality of Life can be improved?**

Ans.: The quality of life can be improved through

Individual Efforts : It means improving physical quality life of individuals living in society.

- By achieving maximum level of literacy.
- By improving individual capacity of work and producing more than total improvement.
- Adequate nutrition, including ready access to uncontaminated water supply.
- Adequate housing.
- Adequate Clothing.
- Access to Prevention and curative mediciene.
- Security of life and property and
- Gainfuls employment.

Small Group Activities : Man is a social animal. He is gifted with quality of co-operation with follow beings to achieve aims of better living.

Small group activities with regards to quality of life includes.

- Organization of food secruity/production and distribution system.
- Housing scheme.
- Organization of production/distribution system for clothing.
- Organization of network of medical facilities.
- Secruity and police.
- Employment schemes.
- Mass education covering area of nutrition, water use, child care and health care etc.

Government Intervention : State and Central government interference with working system for improving the overall quality of life.

- Firstly, government arranges a number of infrastrustural facilities, which producing sector particularly private sector cannot manage and arrange due to financial and resource constraints.
- Secondly, to check adulteration in products and exploitation the intervention reduce in equalities of income and ensure even distribution of income GDP. This is done by using effective fiscal and monetary measures.
- Thirdly, government through public expenditure improves the quality of life.
- Fourthly, planning is a great assets with government for development of culture upon which overall nation's quality of life.

1.5 | ROLE OF PLANNING IN DEVELOPMENT

Planning is a method of making better decisions for the future. It is an important component of development activities. Planning is to act according to decision. All works with planning if well defined, goals and objectives are achieved whether it is an individual firm, professional body, governments, corporate sector or any other unit involved in economics growth, intersectional coordination, social welfare and social relations.

- In India, the idea of planning has been identified more with extensive government control over the economy.
- Since 1951 successive five year plans have been prepared by the planning commission these are development plans.
- Each plan lays down broad targets, energy and transport, industry, health and family welfare, science and technology etc.
- Ours is a mixed economy in which a plans acts as a mean of coordinating actions within the public sector and between the public and private sector.

1.5.1 | FEATURES OF PLANNING

- Planning is goal oriented and seeks to achieve certain objectives and goals, as one plan is linked to subsequent plan.
- Planning is done for future and in order to anticipate future accurately scientific technique of forecasting is used.
- Planning is not merely guess work but involves rational thinking.
- Planning is essentially a process of choosing among alternatives.
- Planning leads to accomplishment of desired objectives at the minimum possible cost.
- Planning is a continuous process - a never ending function due to ever-changing environment of development process.

1.5.2 | STEPS IN PLANNING

Steps involves in development planning are :

- Define and decide clearly the objectives.
- Discover the various sources of action which may be used to achieve the established objectives.
- Collect all relevant information related to it primary and secondary sources. The data, so collected serve the purpose as the basis for development of an alternative course of action.

- The various alternatives are evaluated and compared in terms of their expected cost and banefits. In a socialistic pattern of society and mixed economic system, social welfare instead of profit motive is the main consideration.
- Once the plan is decided the next course of action is to develop details plan.

  DPR = Detailed project report.

  The DPR refers to policies, procedures, rules, programmes, schedules and budgets etc.
- There after plans are required to be explained to subordinates to enlist their support in the execution of plans.
- Continuous evaluation of plan is essential as it helps to detect short comings or pitfalls. All plans should be renewed from time to time in the light of current circumferences and accordingly necessary action should be taken to keep them updated.

1.5.3 | 12th Five Year Plan (2012-17)

The Twelfth Plan commenced at a time when the global economy was goingthrough a second financial crisis, precipitated by the sovereign debt problems of the Eurozone which erupted in the last year of the Eleventh Plan. The crisis affected all countries including India. Our growth slowed down to 6.2 percent in 2011-12 and the deceleration continued into the first year of the Twelfth Plan, when the economy is estimated to have grown by only 5 percent. The Twelfth Plan therefore emphasizes that our first priority must be to bring the economy back to rapid growth while ensuring that the growth is both inclusive and sustainable. The broad vision and aspirations which the Twelfth Plan seeks to fulfil are reflected in the ***Subtitle: 'Faster, Sustainable,and More Inclusive Growth'***.

Inclusiveness is to be achieved through poverty reduction, promoting group equality and regional balance, reducing inequality, empowering people etc. whereas sustainability includes ensuring environmental sustainability, development of human capital through improved health, education, skill development, nutrition, information technology etc. and development of institutional capabilities, infrastructure like power telecommunication, roads, transport etc.

Monitorable Targets of the Plan :

Twenty Five core indicators listed below reflect the vision of rapid, sustainable & more Inclusive growth of the twelfth Plan :

(i) Economic Growth

- Real GDP Growth Rate of 8.0 per cent.
- Agriculture Growth Rate of 4.0 per cent.
- Manufacturing Growth Rate of 10.0 per cent.
- Every State must have an average growth rate in the Twelfth Plan preferably higherthan that achieved in the Eleventh Plan.

(ii) Poverty and Employment

- Head-count ratio of consumption poverty to be reduced by 10 percentage points over the preceding estimates by the end of Twelfth FYP.
- Generate 50 million new work opportunities in the non-farm sector and provide skillcertification to equivalent numbers during the Twelfth FYP.

(iii) Education

- Mean Years of Schooling to increase to seven years by the end of Twelfth FYP.
- Enhance access to higher education by creating two million additional seats for eachage cohort aligned to the skill needs of the economy.
- Eliminate gender and social gap in school enrolment (that is, between girls andboys, and between SCs, STs, Muslims and the rest of the population) by the end ofTwelfth FYP.

(iv) Health

- Reduce Infant mortality rate (IMR) to 25 and Mother mortality rate (MMR) to 1 per 1,000 live births, and improve Child Sex Ratio
- (0–6 years) to 950 by the end of the Twelfth FYP.
- Reduce Total Fertility Rate to 2.1 by the end of Twelfth FYP.
- Reduce under-nutrition among children aged 0–3 years to half of the NFHS-3 levelsby the end of Twelfth FYP.

(v) Infrastructure, Including Rural Infrastructure

- Increase investment in infrastructure as a percentage of GDP to 9 per cent by theend of Twelfth FYP.
- Increase the Gross Irrigated Area from 90 million hectare to 103 million hectare bythe end of Twelfth FYP.
- Provide electricity to all villages and reduce AT&C losses to 20 per cent by the endof Twelfth FYP.
- Connect all villages with all-weather roads by the end of Twelfth FYP.
- Upgrade national and state highways to the minimum two-lane standard by the endof Twelfth FYP.
- Complete Eastern and Western Dedicated Freight Corridors by the end of TwelfthFYP.
- Increase rural tele-density to 70 per cent by the end of Twelfth FYP.
- Ensure 50 % of rural population has access to 40 lpcd piped drinking watersupply, and 50 % gram Panchayats achieve Nirmal Gram Status by the end ofTwelfth FYP.

(vi) Environment and Sustainability

- Increase green cover (as measured by satellite imagery) by 1 million hectare everyyear during the Twelfth FYP.
- Add 30,000 MW of renewable energy capacity in the Twelfth Plan
- Reduce emission intensity of GDP in line with the target of 20 per cent to 25 percent reduction over 2005 levels by 2020.

(vii) Service Delivery

- Provide access to banking services to 90 per cent Indian households by the end ofTwelfth FYP.
- Major subsidies and welfare related beneficiary payments to be shifted to a directcash transfer by the end of the Twelfth Plan, using the Adhar platform with linked bankaccounts.

Targets for 12th Five year Plan for Rajasthan :

Sector	Target for Twelfth Plan for Rajasthan
Agriculture	3.50%
Industries	8.00%
Services	9.50%
Total Growth Rate	7.70%

The major head-wise proposed allocations are :

Head of Development/Sector	Twelfth Plan Proposed Outlay (2012-17)	Percent to Total Outlay
Agriculture & Allied Services	10977.13	5.57
Rural Development	17738.39	9.00
Special Area Programme	1151.94	0.59
Irrigation and Flood Control	7853.91	3.99
Power	72723.25	36.92
Industry & Minerals	993.52	0.50
Transport	10408.22	5.28
Scientific Services and Research	242.07	0.12
Social & Community Services	69490.58	35.28
Economic Services	3673.83	1.87
General Services	1739.16	0.88
TOTAL	**196992.00**	**100.00**

Some Monitorable socio economic parameters are :

Social Indicators	Unit	Twelfth Plan Goals for Rajasthan
Infant Mortality Rate (IMR)	Infant deaths per thousand live births	40
Maternal Mortality Ratio (MMR)	Maternal deaths per lakh live births	200
Total Fertility Rate (TFR)	Birth per Woman	2.5
Malnutrition among Children under 3 years	Percent	25.3
Anemia among women (15 – 49 years)	Percent	24.3
Sex Ratio (0 – 6 years)	Girls per thousand Boys	912
Total Literacy Rate	Percent	79.57
Male Literacy Rate	Percent	91.89
Female Literacy Rate	Percent	66.22

Recent Changes in Approach :

With the scrapping of planning commission, the era of five year plans has come to an end. The 12 five year plan was India's last five year plan. The Niti Aayog, which has replaced the planning commission has launched a three year action plan from April 1, 2017. Niti Aayog has also been entrusted the work on the 15 year vision document and a seven year strategy, which would guide the government's development works till 2030.

1.6 | RELATIONSHIP BETWEEN ECONOMIC, SOCIAL & SCIENTIFIC FACTORS

Economic development is not possible without the social change and technology is most necessary factor in the change from the traditional stage to modernization one. This shows that social, economic and scientific factors are all highly interrelated. Modern society is very complex and complicated. Thus, one aspect of development affects the others.

Economic development brings social prosperity, better eduction, quality food and shelter, etc. In the same way, scientific factors bring about the economic advancement. When the society adopts the latest scientific means of production, then there is economic prosperity and the living standard of the people goes up.

To become a developed country, the underdeveloped countries should accept change as a norm and as a value. The society, its institutions, and the people should ready to accept change. The customs and traditions of society, the relationship between government and the people, the religions and their sentiments must all be conductive for change, so that social transformation may occur for economic growth.

For example, in India, the use of fertilizers, better seeds, co-operating farming has tended to fail because these techniques are not in conformity with the people's belief systems and activities.

Example : Explain Inter-relationship between social, economics, scientific and technological factor for development:

Solution: Development is a goal of all nations, and a life necessity for human beings. Strategies for economic development stress the importance of science and technology in accomplishing such goals. We know that there is a strong relationship between science and technology in the context of the economic and social development.

- **Interrelationship between social and economic Development :**

  To understand the relationship between social and economic development first we need to understand the meaning of social and economic development.

  Economic development is a process in which different sectors of the economy such as agriculture, industry, trade, transport, irrigation, power resources etc. are improving. It is related to the improvement in the economic condition of people and the country as a whole. Expanding activities such as agriculture industry and services help to develop an economy.

  On the other hand social development is related to the improvements in health, education, housing, drinking water, etc. and the social status as a whole. Improvement in them may be indirectly related to economic development because if income increases, people can enjoy better health, education, nutritional food and housing. If the people are poor, they can suffer from malnutrition, sickness, illiteracy, homelessness, etc. So, the essence of economic development is the growth of output or real income per head of population.

  There is a dispute among different development economists regarding the interrelationship between the social and economic development. Economist such as Zuvekas considered that there is no interrelationship between social development and economic development. According to Zuvekas economic development can occur without social development. But some other economist such as Rostow considered that economic development determines social development and social development precedes economic development. They argued that we need economic development to ensure the well-being of the society and improve standards of living and this improvement in the well-being of society leads to the economic development.

  Thus we can say that economic and social development is highly interdependent. Due to the needs of social development the economic development takes place in the society. As well as the economic development leads to the social development.

  We know human wants are unlimited and resources available to society are limited. Therefore, To satisfy its wants man tends towards the economic development. This results in an increase in the production of goods and services. This increase in production and introduction of new services and advancement of services leads to the social development or in other terms it leads to the improvement in the living standard of the people.

This standard of living includes various things like safe drinking water; improve sanitation systems, medical facilities, spread of primary education to improve literacy rate, eradication of poverty, balanced transport networks, increase in employment opportunities etc. Thus, the quality of life is the major indicator of economic development. Therefore Economic development and social development are complementary to each other.

We know that environment is a major content of the society. In the traditional opinion, environmental protection and economic development are mutually contradictory, economic growth must be a high environmental cost, and to protect the environment will limit economic growth. At present, with economic development, many environmental concerns arise in today's society. Air, water, and land pollution have been worsening; the environment of wild animals and plants has been seriously damaged, many species are threatened with extinction. Deforestation and over-exploitation of mineral resources give human survival and development a real and more serious potential threat.

Thus we can say that development is the theme of the modern society.

- **Interrelationship between social and scientific and technological development :**

There is co dependence between social development and scientific and technological development This ao dependence or interrelationship has been emerged from the dawn of civilization. Early humans invented wheels and other important tools to make their life simple. After mat different kind of intervention are taking place day by day to help the society in different ways. Thus the social needs promoted scientific and technological development and this development also endorsed the social development.

Innovation is the primary driver of technological growth and drives higher living standards. Developments in science and technology are fundamentally changing the way of living of the society, as it puts a vast impact on the society regarding connection, communication and transaction.

Recently developing nations are putting stress on scientific and technological development to fulfill the unlimited wants of society with the help of available limited resources. Investment in research and development promote technological advancement.

If there is a development of society in terms of education, health and skills, the scientific and technological development takes place. These technologies have the power to better the lives of all human beings. For example innovation of vaccination is now helping people to live healthy and productive lives.

For other instance, the combination of computers and the Internet, and mobile devices, has transformed human experience, empowering individuals through access to knowledge an3 markets, changing the relationship between humans and those in authority, as well as allowing new communities to emerge in virtual worlds that span the globe. So the cellular technology has allowed society to leapfrog the age of fixed line telephony, bringing affordable access to millions pf people.

At present advances in science and its resulting technologies, such as global communication, satellite images of Earth, development of meteorology, different ways of exploring oil etc., have irrevocably expanded the space for society. Science is largely responsible for a growing public awareness.

The implementation of technology and scientific development influences the society by changing expectations and realities. The implementation of technology is also influenced by values.

Technology often has a more direct effect on society as it solves practical problems, serves human needs and promotes development. New problems and needs may then arise. Science enlarges or challenges societal views of the world. A scientific explanation of a phenomenon may lead to a technological development that serves a societal need. Conversely, a societal need or want may result in a technological solution, which then leads to a scientific explanation.

Thus we can say that technology has become huge part of society. If there is social development takes place in the society, the society knows more about the development in a technology, and they become able to take advantage of it. Social development make the people enough skilled to use the technology in efficient way. If a man is less skilled, he won't be able use the technology in a proper way and efficiently.

- **Interrelationship between economic and scientific and technological development:**

Science and technology are key drivers to economic development, because technological and scientific revolutions prop up economic advances, improvements in level of production and services.

The technological developments are transforming business practices across the economy, as well as the lives of all who have access to their effects. In the modern world, superior technologies and scientific innovations give rise to robust economies and in a well-functioning, robust economy, economic excess naturally flows into greater use of technology. Moreover, because technology is such an inseparable part of human society, especially in its economic aspects, funding sources for (new) technological endeavors are virtually illimitable.

Adopfing appropriate technologies leads directly to higher productivity, which is the key to growth. In the past two centuries, science has been used mainly as a tool for economic expansion. It is now clear that the current consumption of natural resources and increasing stresses on the regional and local environment cannot continue indefinitely without breakdown of the natural support systems that make present civilizations possible. Science, which helped to bring about this situation, now has an over-riding responsibility to help societies make a transition from an obsession with growth to achievement of a dynamically stable and sustainable ecological and economic system.

For example technology unlocks the infrastructure backlogs and integrates the supply chains.The extent to which developing economies emerge as economic powerhouses depends on their ability to grasp and apply insights from science and technology and use them creatively.

Thus at the end we can say that as an engine of development whether it is social or economic, the potential of technology is endless, and it is still largely untapped in India.

1.7 | GROSS DOMESTIC PRODUCT : DEVELOPMENT CRITERIAN

The GDP (Gross Domestic Product) is indicator of economic growth and well being.

GDP (Gross Domestic Product) is total values of all products and services bought and sold, a measure of money changing hands

- The realistic measures of progress is separate costs and benefits.
- The GDP (Gross Domestic Product) has no way of assessing the values of natural resources until they enter the monetary economy or in other words are consumed.
- The GDP (Gross Domestic Product) completely ignores all activities and service that have no price attached to them

Kofi Annan the former Secretary General (SG) of UN defines a developed country is one that allows all its citizens to enjoy a free and healthy life in a safe environment.

1.7.1 | Sustainable Development

Continuous development over a long period of time without fluctuations in the rising trend of real national income of a country and this is called sustainable development.

It the national income of a country increase in one year but falls in the subsequent year then it is not called economic development of sustainable level.

1.7.2 | Methods of Indexing Quality of Life

- Increase in real per capita income that is national income divided by population is a generally accepted way of indexing quality of life.
- The extent to which national income has increased and what is the growth rate of this income.
- What is the share of national income coming from the primary, secondary and tertiary sectors of the country.
- What is the extent of urbanization, literacy and education rate.
- How much and to what extent infrastructural facilities have been created. These facilities pertain to transport and communication, energy, water supply and electricity etc.
- To what extent application of science and technology is made and what is the magnitude of research in the various fields.
- What type of man power the country has been able to possess. In other words how many engineers, doctors and professionals do a nation has.
- These should be multi-dimensional development and people should have scientific temperament and cultural attitude.

1.7.3 | Variables Needed to Improve Quality of Life

- Helath
- Education
- Culture
- Housing
- Environment
- Security
- Employment and Working conditions
- Income, consumption, wealth
- Social welfare
- Adequate nutrition

1.8 | NATIONAL INCOME CONCEPTS

National income estimates are the most reliable macroeconomic indicators of an economy. Therefore, it is essential for students to be aware of National Income Concepts. Changes in national income measure the rate of growth of the economy.

Similarly, changes in the structure of national income of an economy reflect the changing significance of different sectors. In India, national income, as also per capita income, have been continuously increasing. In more recent years, the rate of growth of national income has accelerated. It indicates that the economy has been growing at a faster rate in recent years than in the past. Along with this, the structure of national income has also undergone a change, the tertiary sector has emerged as the dominant sector of the economy.

The task of preparing national income estimates has been assigned to the Central Statistical Organisation (CSO). The CSO has been producing annual official estimates of national income of India since 1955 and publishing the same in its annual report National Accounts Statistics.

National income accounting comprises of four concepts of calculations- GDP, GNP, NDP, and NNP.

1.8.1 | Gross Domestic Product (GDP)

GDP is the market value of goods and services produced within a selected geographic area (usually a country) in a selected interval in time (often a year).In India one year means from 1st April to 31st March of the next year.

GDP calculation includes income of foreigners in a Country but excludes income of those people who are living outside of that country.

1.8.2 | Net Domestic Product (NDP)

NDP is calculated by deducting the depreciation of plant and Machinery from GDP.

NDP = Gross Domestic Product - Depreciation

1.8.3 | Gross National Product (GNP)

GNP is the value of all final goods and services produced by the residents of a country in a financial year (i.e., 1st April to 31st March of the next year in India).

While Calculating GNP, income of foreigners in a country is excluded but income of people who are living outside of that country is included. It is the GDP of a country added with its income from abroad.

$$GNP = GDP + X - M$$

Where, X = income of the people of a country who are living outside of the Country

and M = income of the foreigners in a country

- India's GNP is always lower than its GDP.
- This is the national income according to which the IMF ranks nations.
- It allows for knowledge of factors in production behaviour and pattern of an economy's dependence on outside world, nature of human resources internationally, position in world economics.
- It indicates both qualitative as well as quantitative aspects of an economy in a more exhaustive fashion than GDP.

Intermediate products = one production unit purchasing from other for resale

Final product = all goods and services purchased for consumption and investment , and not for resale

Value added = Value of output - Intermediate cost

Gross value added = net value added + depreciation

Indirect tax = all taxes levied on production, finally paid by consumer of buyer Ex - sales tax, excise, customs

Subsidies = Financial help given by the government to the production units for selling the product at lower prices

1.8.4 | Net National Product (NNP)

Net National Product (NNP) in an economy is the GNP after deducting the loss due to depreciation.

NNP = GNP - Depreciation