ECONOMICS BASIC NOTES - PART 3

BASED ON: **NCERT TEXT BOOK FOR CLASS XI**
INDIAN ECONOMIC DEVELOPMENT

CHAPTERS

CHAPTER 1
INDIAN ECONOMY ON THE EVE OF INDEPENDENCE

1. The sole purpose of the British colonial rule in India was to reduce the country to being a raw material supplier for Great Britain's own rapidly expanding modern industrial base.

2. The economic policies pursued by the colonial government in India were concerned more with the protection and promotion of the economic interests of their home country than with the development of the Indian economy.

3. India's economy under the British colonial rule remained fundamentally agrarian- 85% of the country's population lived mostly in villages and derived livelihood directly or indirectly from agriculture.

4. Agricultural productivity was low.

5. The stagnation in the agricultural sector was caused mainly because of various systems of land settlement that were introduced by the colonial government. Particularly under the Zamindari system which was implemented in the then Bengal Presidency comprising parts of India's present-day eastern states, the profit accruing out of the agriculture sector went to the zamindars instead of the cultivators.

6. Besides this low levels of technology, lack of irrigation facilities and negligible use of fertilizers, all added for the low productivity.

7. The British policy was to reduce India to the status of a mere exporter of raw materials and to turn India into a market for the finished products of those industries.

8. During the second half of the 19t century, modern industry began to take root in India, but its progress remained very slow. Initially, this development was confined to the setting up of cotton and jute textile mills. The cotton textile mills, mainly dominated by Indians, were located in the western parts of the country, namely Maharashtra and Gujarat, while jute mills dominated by the foreigners were mainly concentrated in Bengal. Later the iron and steel industries began coming up in the beginning of 20th century. Tata Iron and Steel Company TISCO was incorporated in 1907. A few other industries in the fields of sugar, cement, paper etc. came up after the 2nd World War.

9. THERE WAS HARDLY ANY CAPITAL GOODS INDUSTRY to help promote further industrialization in India.

10. **FOREIGN TRADE**: INDIA has been an important trading nation since ancient times. Britain maintained a monopoly control over India's exports and imports. There was a huge export surplus. This surplus came at a huge cost to the country's economy. Several essential commodities food grains, clothes, kerosene etc were scarcely available in the domestic market. The export surplus did not result in any flow of gold or silver into India. This was used to make payments for the expenses incurred by an office set up by the colonial government in Britain, expenses on war again fought by the British government and import of invisible items, all of which led to drain of Indian wealth.

11. **DEMOGRAPHIC CONDITION**: First census was done in 1881.It revealed the unevenness in India's population growth. Before 1921, India was in first stage of demographic transition. The second stage of transition began after 1921. However, neither the total population of India nor the rate of population growth at this stage was vey high.
The overall literacy rate was less than 16%. Female literacy rate was below 7 %. Public health services were poor or not there. Water and air-borne diseases were rampant and took a huge toll on life.
Overall mortality rate was very high. Infant mortality rate was 218 per thousand. Life expectancy was also low 32 years.

12. **OCCUPATIONAL STRUCTURE**: The agricultural sector accounted for 70-75%, Manufacturing and service sectors accounted for only 10 and 15-20% respectively.

13. **INFRASTRUCTURE**: Basic infrastructures such as railways, posts, water transport, posts and telegraphs were developed to serve the British interests. Roads were built for easy movement of army and drawing out of raw material. Railways was introduced in 1850. Railways helped in breaking geographical and cultural barriers besides commercialization of agriculture. Coastal Canal on the Orissa coast was developed but it failed to compete with the railways.

14. **CONCLUSION**: At the time of independence, all sectors of economy were in bad shape. The agricultural sector was having surplus labour, industrial sector was crying for modernization, diversification, capacity building and increased public investment. Prevalence of rampant poverty and unemployment required welfare orientation of public economic policy. Thus, the social and economic challenges before the country were enormous.

CHAPTER 2
INDIAN ECONOMY 1950-1990

1. On 15 August 1947, India got the freedom from British Rule nearly after 200 years. Our leaders chose socialism type of economy, socialism was preferred but not of Soviet Union kind. The mixed type of economy was finally decided for India.

2. The Planning Commission was set up with the Prime Minister as its Chairperson. We decided to have 5 years of plans with clear and specified goals as the resources were limited.

3. The goals of the five-year plans were: growth, modernization, self-reliance and equity.

4. **Growth**: It refers to increase in the country's capacity to produce the output of goods and services within the country. The focus was larger stock of productive capital with a larger size of supporting services like transport and banking. Aim was to have growth in GDP.

5. Modernisation: To increase the production of goods and services the producers were encouraged to adopt new technology. Adoption of new technology is called modernisation. Modernisation in social outlook was also considered necessary.

6. Self-reliance: The first seven five-year plans gave importance to self-reliance which means avoiding imports of goods which could be produced in India itself.

7. Equity: It was considered important to ensure that the benefits of economic prosperity reach the poor sections of the society. Every Indian should be able to meet his or her basic needs such as food, a decent house, education and health care and inequality in distribution of wealth should be reduced.

8. **AGRICULTURE:**
   LAND REFORMS- Primarily refer to change in the ownership of landholdings. Zamindari system was to be abolished and to make the tillers the owners of land. The ownership of land would give incentives to the tillers to invest in making improvements provided sufficient capital was made available to them.

   The abolition of zamindars brought 200 lakh tenants in direct contact with the government. *LAND CEILING*- this was to promote equity in the agricultural sector. This means fixing of maximum size of land which could be owned by an individual. This was to avoid the concentration of land ownership in a few hands. As the law of ceiling of land had many loopholes the land reforms could not got the desired results. Land reforms were most successful in Kerala and West Bengal because these states had governments committed to the policy of land to the tiller.

9. **THE GREEN REVOLUTION**: the productivity was low. 75% population was engaged in agriculture. The reasons for low productivity were: lack of technology; dependence on monsoon for irrigation; and non-use of high yielding variety of seeds. Green revolution resulted in large increase in food production of food grains by using high yielding variety seeds especially for wheat and rice. The use of these seeds required the use of fertilizers and pesticides and regular supply of water. In the first phase of revolution mid-sixties to mid-seventies the use of HYV seeds was restricted to the more affluent states such as Punjab, Andhra Pradesh and Tamil Nadu.

   In the second phase of the green revolution mid 1970s to mid 1980s the HYV technology spread to a larger number of states and benefitted other than wheat also.

   Green revolution technology enabled India to achieve self-sufficiency in food grains.

   Green revolution brought the inequality too among the farmers. The big farmers were benefitted the most. To counter this the government provided loans at a low interest rate to small farmers and subsidized fertilizers to give benefit to small farmers.

10. SUBSIDIES:

Subsidies are generally given to encourage farmers to test the new technology or to keep the cost low. Subsidy is given for purchase of high yielding seeds, fertilizers, pesticides etc. Giving subsidies is a matter of debate. For instance, subsidy on fertilizers help the fertilizer industry and big farmers. It is argued that the subsidy does not benefit the target group and it is a huge burden on the government's finances. Other group believe the government should continue with agricultural subsidies because farming in India continuous to be a risky business. Most farmers are poor, and they will not be able to afford the required inputs without subsidies.

11. CONTRIBUTION OF AGRICULTURE TO GDP:

As a nation becomes more prosperous, the proportion of GDP contributed by agriculture as well as the proportion of population working in the sector declines considerably.

In India, between 1950 and 1990, the proportion of GDP contributed by agriculture declined significantly but not the population depending on it 67.5% in 1950 to 64.5% by 1990.

This was due to inadequate development /growth of industrial sector and the service sector as these sectors could not create enough jobs for people working in the agricultural sector.

12. INDUSTRY AND TRADE:

Robust industrial sector is essential for the progress of a nation. Industry provides employment which is more stable than the employment in agriculture. Industries promotes modernization and overall prosperity.

Immediately after independence the government had to play an extensive role in promoting the industrial sector. Industries considered vital for the nation were largely controlled the government.

INDUSTRIAL POLICY RESOLUTION 1956: This resolution formed the basis of the Second Five Year Plan. This resolution classified industries into three categories.

I. industries which would be exclusively owned by the state
II. industries both state and private sector can own
III. remaining industries to be in private sector

Industries under private sector had a control by the state through a system of licenses. This policy was used for promoting industry in backward regions. Industries coming up in backward areas were given many facilities and concessions. The purpose of this policy was to promote regional equality.

Even an existing industry had to obtain a license for expanding output or diversifying production. This was necessary to ensure judicious use of resources and to ensure the right quantity is produced by the industry for the market.

13. SMALL-SCALE INDUSTRY: In 1955, the Village and Small-Scale Industries Committee, also called the Karve Committee suggested the possibility of using small-scale industries for promoting rural development. In 1950 a small-scale industrial unit was one which invested a maximum of rupees five lakh. At present the limit is one crore. Small scale units are more labour intensive and finds difficult to compete with large firms. For this purpose, the production of a number of products was reserved for the small-scale industry, the small-scale units were given concessions such as lower excise duty and bank loans at lower interest rates.

14. **IMPORT SUBSTITUTION**: import substitution policy was adopted during the first seven plans. This policy aimed at replacing imports with domestic production. Government protected the domestic industry from foreign competition by way of tariffs and quotas. Tariffs are a tax on imported goods. They make imported goods more expensive thus discourage their use. Quotas specify the quantity of goods which can be imported. The effect of tariffs and quotas is that they restrict imports and therefore protect the domestic firms from foreign competition.

15. **INDUSTRIAL GDP:** The proportion of GDP contributed by the industrial sector increased in the period from 11.8% in 1950-51 to 24.6% in 1990-91. The rise in the industry's share of GDP is an important indicator of development. Public sector played a major role in this industrial development. Now experts argue that the state should get out of areas which the private sector can manage, and the government may concentrate its resources on important services which the private sector cannot provide.

UNIT II
ECONOMIC REFORMS SINCE 1991

Chapter 3
LIBERALISATION, PRIVATISATION AND GLOBALISATION

1. **TYPES OF ECONOMIC SYSTEMS**

MARKET ECONOMY-

CAPITALISM:
Demand and Supply of Goods and Services depends on people who are buying/ using them and depending on the Demands the Supplier will modify his production line to maximize his profits. Such system is controlled by Market Forces. This is also called capitalism. Only those consumer goods will be produced that are in demand. Manufacturer will deploy more labour if labour is cheaper than capital. In a capitalist society the goods produced are distributed among people not on the basis of what people need but on the basis of Purchasing Power- the ability to buy goods and services. In this structure poor who do not have the purchasing power are not counted in the business cycle. Poor suffer. As at the time of independence the poverty was a big problem, the then leaders rejected the Market Economy for India.

SOCIALIST SOCIETY: In a socialist society the government decides what goods are to be produced in accordance with the needs of society. It is assumed that the government knows what is good for the people of the country and so the desires of individual consumers are not given much importance. The government decides how goods are to be produced, how much should be produced and how they should be distributed. In principle, distribution under socialism is supposed to be based on what people need and not on what they can afford to purchase. Strictly, a socialist society has no private property since everything is owned by the state. In Cuba and China, most of the economic activities are governed by the socialistic principles. In this system the poor of the society is taken care of by the government.

MIXED ECONOMY- Mixed economy is combination of both Capitalism and Socialism. It is the middle path. For growth capitalism and for taking care of poor socialism.

INDIA FOLLOWED THE MIXED ECONOMY FRAMEWORK BY COMBINING THE ADVANTAGES OF THE CAPITALIST ECONOMIC SYSTEM AND THOSE OF THE SOCIALIST ECONOMIC SYSTEMS.

2. In 1991, India met with an economic crisis relating to its external debt. The government was not able to make repayments on its borrowings from abroad. Foreign exchange reserves were not sufficient even for a fortnight. India approached the World Bank and IMF and received $7 billion as loan to manage the crises.

For availing the loan, these international agencies expected India to liberate and open up the economy by removing restrictions on the private sector, reduce the role of the government in many areas and remove trade restrictions between India and other countries.
India agreed to the conditionalities of World Bank and IMF and announced the New Economic Policy.

3. **NEW ECONOMIC POLICY**: The NEP consisted of wide-ranging economic reforms. Objectives: Improving Balance of Payments & Bringing inflation under control. Structural reform measures were aimed at improving the efficiency of the economy and increasing its international competitiveness by removing the rigidities in various segments of the Indian economy. Policies of Liberalisation, Privatization and Globalisation were adopted.

4. **LIBERALISATION**: Rules and laws which were aimed at regulating the economic activities became major hinderances in growth and development.

Liberalisation was introduced to put an end to these restrictions and open up various sectors of economy.
INDUSTRIAL SECTOR LIBERALISATION-
Industrial licensing was abolished for almost all but product categories- alcohol, cigarettes, hazardous chemicals, industrial explosives, electronics, aerospace and drugs and pharmaceuticals.

The only industries reserved for the public sector restricted to Defence Equipment, atomic energy generation and Railways.
Many goods produced by small scale industries were de-reserved.
In many industries, the market was allowed to determine the prices.

FINANCIAL SECTOR REFORMS-
Financial sector includes financial institutions such as commercial banks, investment banks, stock exchange operations and foreign exchange market.
The financial sector in India is controlled by RBI.
One of the major aims of financial sector reforms is to reduce the role of RBI from regulator to facilitator of financial sector.

The reform policies led to the establishment of private sector banks. FDI in banks raised to 50%. Those banks which fulfilled certain conditions were given freedom to set up new branches. Foreign Institutional Investors (FII) such as merchant bankers, mutual funds and pension funds were allowed to invest in the Indian Financial markets.

TAX REFORMS-
Government taxation policy is called fiscal policy. Since 1991, there has been a continuous reduction in the taxes on individual income. The rate of corporation tax has also been gradually reduced. Indirect taxes were also rationalized to facilitate the establishment of a common national market for goods and commodities. Besides the rates the procedures were simplified.

FOREIGN EXCHANGE REFORMS-

In 1991, as an immediate measure to resolve the balance of payments crisis, the rupee was devalued against foreign currencies. This led to an increase in the inflow of foreign exchange. The control on determination of rupee value in the foreign exchange market was relaxed. Now markets were to determine the exchange rates based on the demand and supply of foreign exchange.

TRADE AND INVESTMENT POLICY-

liberalisation of trade and investment regime was initiated to increase international competitiveness of industrial production and also foreign investments and technology into the economy. The aim was also to promote the efficiency of the local industries and the adoption of modern technologies.

The regime of quantitative restrictions on imports by keeping the tariffs very high was changed to facilitate free imports and exports.

The trade policy reforms were aimed at:

1. Dismantling of quantitative restrictions on imports and exports
2. Reduction of tariff rates
3. Removal of licensing procedures for imports. Import licensing was abolished except in case of hazardous and environmentally sensitive industries.

Quantitative restrictions on imports of manufactured consumer goods and agricultural products were also fully removed.

Export duties were removed to increase the competitive position of Indian goods in the international markets.

5. PRIVATISATION

Government controlled companies were gradually moved towards their conversion to private companies. 1. By withdrawal of the government from ownership and management of public sector companies and by 2. Outright sale of public sector companies.

DISINVESTMENT- Privatisation of the public sector undertakings by selling off part of the equity of PSUs to public is known as disinvestment

The government envisaged that Privatisation will bring efficiency, helps in modernisation and also attract FDI.

The PSUs under governmental controls were given autonomy in taking managerial decisions.

6. GLOBALISATION:

Globalisation mean integration of the economy of the country with the world economy. It is transforming the world towards greater interdependence and integration. It involves creation of networks and activities transcending economic, social and geographical boundaries. It is turning the world into one whole or creating a borderless world.

Outsourcing is common feature in globalisation. In outsourcing a company hires regular service from external sources, mostly from other countries, which was previously provided within the country.

7. WORLD TRADE ORGANISATION (WTO):

The WTO was founded in 1995 as the successor organisation to THE GENERAL AGREEMENT ON TRADE AND TARIFF (GATT). GATT was established in 1948 with 23 countries as the global trade organisation to administer all multilateral trade agreements by providing equal opportunities to all countries in the international market for trading purposes. WTO ensures that countries do not impose arbitrary restrictions. In addition, WTO works to enlarge production and trade of services, to ensure optimum utilization of world resources and to protect the environment.

Growth of GDP of Major sectors in %

Sector	1980-1991	1992-2001	2002-2007	2007-2012
Agriculture	3.6	3.3	2.3	3.2
Industry	7.1	6.5	9.4	7.4
Services	6.7	8.2	7.8	8.2
Total	5.6	6.4	7.8	8.2

8. FDI:

The opening up of the economy has led to rapid increase in foreign direct investment and foreign exchange reserves. The foreign investment which includes foreign direct investment (FDI) and foreign institutional investment (FII) has increased from about US$ 100 million in 1990-91 to US$ 400 billion in 2010-11. There has been an increase in the foreign exchange reserves from about US$6 billion in 1990-91 to US $ 300 billion in 2011-12. In 2011, India was the seventh largest foreign exchange reserve holder in the world.

9. DISINVESTMENT

Every year, the government fixes a target for disinvestment of PSUs. For instance, in 191-92, it was targeted to mobilise Rs. 2,500 crores through disinvestment. The government was able to mobilise Rs. 3,040 crore more than the target. In 2010-11, the target was Rs. 40,000 crore whereas the achievement was Rs. 22,850 crore.

10. NAVRATNAS AND PSUs:

In order to improve efficiency, infuse professionalism and enable them to compete more effectively in the liberalised global environment, the government identifies PSUs and declare them as Maharatnas, Navaratnas, and Miniratnas. They were given greater managerial and operational autonomy, in taking various decisions to run the company efficiently and thus increase their profits. Greater operational, financial and managerial autonomy has also been granted to profit-making enterprises referred to as Miniratnas.
MAHARATNAS: Indian Oil Corporation Ltd., Steel Authority of India Limited.
NAVARATNAS: BHEL, MTNL
MINIRATNAS: AIRPORT AUTHORITY OF INDIA, IRCTC

UNIT III
CURRENT CHALLENGES FACING THE INDIAN ECONOMY

Chapter 4 - POVERTY

1. The economic policies of India focused on providing minimum basic needs to the people and reduction of poverty. Efforts were for integrating the poor into the mainstream and achieving a minimum standard of living for all.
Starvation and hunger are the key features of the poorest households. The poor lack basic literacy and skills and hence have very limited economic opportunities. Poor people also face unstable employment. Malnutrition is alarmingly high among the poor. Ill health,

disability or serious illness makes them physically weak. They borrow from money lenders who charge high rates of interest that lead them into chronic indebtedness. A large section of poor people don't have access to safe drinking water.
In pre-independent India, Dadabhai Naoroji was the first to discuss the concept of a poverty line. He used the menu for a prisoner and used appropriate prevailing prices to arrive at what may be called 'jail cost of living'.

In 1962, Planning Commission formed a study group.
In 1979, another body called the 'Task Force on Projections of Minimum Needs and Effective Consumption Demand' was formed. In 1989 and 2005, an Expert Group was constituted for the same purpose.

2. POVERTY LINE:
There are many ways of measuring poverty. One way is to determine it by the monetary value (per capita expenditure) of the minimum calorie intake that was estimated at 2,400 calories for a rural person and 2100 for a person in the urban area. Based on this, in 2004-2005, the poverty line was defined for rural areas as consumption worth Rs. 447 per person a month and for urban areas it was Rs. 579. This method doesn't take into account accessibility to basic education, healthcare, drinking water and sanitation.
No method appears to be perfect.
Amartya Sen, noted Noble Laureate, has developed an Index known as Sen Index.

3. THE NUMBER OF POOR IN INDIA
When the number of poor, is estimated as proportion of people below the poverty line, it is known as 'Head Count Ratio'.

The data on poverty is released by the Planning Commission. It is estimated on the basis of consumption expenditure data collected by the National Sample Survey Organisation (NSSO).
In 1973-74 – 320 million people were below poverty line 55% of the population
In 2004-05 – 300 million. 37%

CHAPTER 5
HUMAN CAPITAL FORMATION IN INDIA

1. Human capital is needed for economic growth. People working, and earning are human capital of the nation. Person who is able to generate more income will contribute more to economic growth. All people put together are called human resources. Human resources working and contributing in economic activity is generating economic value and thus is a human capital. Societies need sufficient human capital. Competent people, professors, and professionals are good human capital, they are able to produce other human capital. We need investment in human capital to produce more human capital out of human resources.

2. Investment in education is considered as one of the main sources of human capital. Investments in health, on-the -job training, information are the other sources of human capital formation.
Spending on education is similar to spending on capital goods by companies with the objective of increasing future profits over a period of time.
Like education, health is also considered as an important input for the development of a nation as much as it is important for the development of an individual. Health expenditure directly increases the supply of healthy labour force and is, thus, a source of human capital formation.
On the job training to workers make a better worker, more productive worker.

3. Migration of people in search of a job and higher salaries involves cost of transportation, higher cost of living in the migrated places and even there is a psychic cost of living in a strange socio-cultural setup. The enhanced earnings in the new place outweigh the costs of migration: hence, expenditure on migration is also a source of human capital formation. People spend to acquire information relating to the labour market and other markets like education and health. Information is necessary to make decisions regarding investments in human capital as well as for efficient utilization of the acquired human capital stock. Expenditure incurred for acquiring information relating to the labour market and other markets is also a source of human capital formation.

4. Human capital formation is partly a social process and partly a conscious decision of the possessor of the human capital.
Human capital is intangible; it is endogenously built in the body and mind of its owner. Human capital is not sold in the market; only the services of the human capital are sold, hence there arises the necessity of the owner of the human capital to be present in the place of production. Human capital is inseparable from its owner.

5. Nature of benefits flowing from human capital are different from that of physical capital. Human capital benefits not only the owner but also the society in general. This is called external benefit. An educated person can effectively take part in a democratic process and contribute to the socio-economic progress of a nation. A healthy person, by maintaining personal hygiene and sanitation, stops the spread of contagious diseases and epidemics. Human capital creates both positive and social benefits, whereas physical capital creates only private benefit. That is, benefits from a capital good flow to those who pay the price for the product and services produced by it.

6. **HUMAN CAPITAL AND ECONOMIC GROWTH**:
Economic growth means the increase in real national income of a country. The contribution of the educated person to economic growth is more than that of an illiterate person. If a healthy person could provide uninterrupted labour supply for a longer period of time, then health is also an important factor for economic growth.
This enhanced productivity of human beings or human capital contributes substantially not only towards increasing labour productivity but also stimulates innovations and creates ability to absorb new technologies. Education provides knowledge to understand changes in society and scientific advancements, thus facilitate inventions and innovations. Similarly, the availability of educated labour force facilities adaptation to new technologies.

PARTICULARS	**1951**	**1981**	**1991**	**2001**	**2010**
Real per capita income	5708	8594	11535	16172	38037
Crude Death Rate (Per 1000 population)	25.1	12.5	9.8	8.1	7.2
Infant Mortality Rate	146	110	80	63	47
Life Expectancy Male	37.2	54.1	59.7	63.9	64
Life Expectancy Female	36.2	54.7	60.9	66.9	67.6
Literacy Rate	16.67	43.57	52.21	65.20	74

7. **INDIA AS A KNOWLEDGE ECONOMY**: India is gradually transforming itself into a knowledge-based economy by using information technology. E-governance is the way forward for India.

8. Human capital formation is the outcome of investments in education, health, on-the-job training, migration and information. Of these education and health are very important sources of human capital formation. NCERT, UGC, AICTE are working in education sector with an aim to improve the standard of education in India. ICMR facilitate institutions which come under the health sector. GOI is providing education and health care free to needy section of the society.

9. The expenditure by the government is expressed in two ways:
1. As a percentage of total government expenditure
2. As a percentage of GDP
During 1952-2010, the education expenditure as percentage of total government expenditure increased from 7.92 to 11.1 and as percentage of GDP increased from 0.64 to 3.25.
The Tapas Majumdar Committee, appointed by the GOI in 1998, estimated an expenditure of around Rs. 1.37 lakh crore over 10 years 1999-2007 to bring all Indian children in the age group of 6-14 years under the purview of school education. The desired level of expenditure should be 6% of GDP.

10. In 2009, the GOI enacted the Right of Education Act to make free education a fundamental right of all children in the age group of 6-14 years.

CHAPTER 6
RURAL DEVELOPMENT

1. **RURAL DEVELOPMENT**: Rural development is a comprehensive overall development of the village economy along with the development of human capital.
- Development of human resources including: literacy of all, skill development, improving health
- land reforms
- development of productive resources
- Infrastructure development
- Alleviation of poverty improving the living conditions
- improving the productivity

2. **CREDIT AND MARKETING IN RURAL AREAS**: Growth of rural economy depends primarily on infusion of capital from time to time, to realise higher productivity in agriculture and non-agriculture sectors. As the time gestation between crop sowing and realization of income after production is quite long, farmers borrow from various sources to meet their initial investment on seeds, fertilizers, implements and other family needs.
Rapid expansion of the banking system had a positive effect on rural farm and non-farm output, income and employment.

3. **NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT (NABARD)** was set up in 1982 as an apex body to coordinate the activities of all institutions involved in the rural financing system. The institutional structure of rural banking today consists of a set of multi-agency institutions, namely commercial banks, regional rural banks (RRBs) cooperatives and land development banks. They are expected to disburse adequate credit at cheaper rates.

4. **Self-Help Groups** have emerged to fill the gap in the formal credit system. The SHGs promote thrift in small proportions by a minimum contribution from each member. From pooled money, credit is given to the needy members, repayable in small instalments at reasonable interest rates. In this system collateral like in formal credit system is not required. SHGs have helped in the financial security and empowerment of women.

5. **AGRICULTURAL MARKET SYSTEM**: Agricultural marketing is a process that involves the assembling, storage, processing, transportation, packaging, grading and distribution of different agricultural commodities across the country. It is estimated that 10% of the total produce is wasted due to lack of storage. The current infrastructure facilities are quite inadequate to meet the growing demand and need to be improved. Cooperative marketing is encouraged.

MINIMUM SUPPORT PRICES: MAINTENANCE OF BUFFER STOCKS: PUBLIC DISTRIBUTION OF FOOD GRAINS are the various government initiatives taken to protect the income of farmers and providing food to poor at reasonable price. If farmers directly sell their produce directly to consumers their income is better. Some markets have been created for this; Apni Mandi – Punjab Haryana and Rajasthan
Hadaspur Mandi- Pune
Rythu Bazars- Andhra Pradesh
Uzhavar Sandies- Tamil Nadu

6. **DIVERSIFICATION:** The need for diversification arises from the fact that there is greater risk in depending exclusively on farming for livelihood. It also provides productive sustainable livelihood options to rural people.
Alternatives:
Food processing industries
Leather industry
Tourism
Pottery
Crafts
Handlooms

ANIMAL HUSBANDRY:
The farming community uses the mixed crop-livestock farming system- cattle, goats, fowl are the widely held species. Livestock production provides increased stability in income, food security, transport, fuel and nutrition for the family without disrupting other food-producing activities. Livestock sector alone provides alternate livelihood options to 70 million small and marginal farmers including landless labourers. Poultry accounts for the largest share with 55%.
India had about 304 million cattle, including 105 million buffaloes.
Milk production in the country has increased by more than five times between 1960-2009. This was due to successful implementation of 'Operation Flood'. It is a system whereby all the farmers can pool their milk produced according to different grading (Quality) and the same is processed and marketed through cooperatives. In this system the farmers are assured of a fair price and income from the supply to the urban markets.
FISHERIES:
Presently, fish production from inland sources contributes about 61% to the total fish production and balance 39% comes from marine sector. Total fish production accounts for 0.7 per cent of the total GDP. Among states, Kerala, Gujarat, Maharashtra and Tamil Nadu are the major producers of marine products. Fish workers are generally poor. There is a need to increase credit facilities through cooperatives and SHGs for fisherwomen to meet the working capital requirements for marketing.
HORTICULTURE:
India has adopted growing of diverse horticultural crops such as fruits, vegetables, tuber crops, flowers, medicinal and aromatic plants, spices and plantation crops. These crops play a vital role in providing food and nutrition, besides addressing employment concerns. The period between 1991-2003 is also called 'Golden Revolution'
India has emerged as a world leader in producing a variety of fruits like mangoes, bananas, coconuts, cashew nuts and a number of spices and is the second largest producer of fruits and vegetables.
Flower harvesting nursery maintenance, hybrid seed production and tissue culture, propagation of fruits and flowers and food processing are highly remunerative employment options for women in rural areas.
Though, in terms of numbers, our livestock population is quite impressive, but its productivity is quite low as compared to other countries. It requires improved technology and promotion of good breeds of animals to enhance productivity.

7. **SUSTAINABLE DEVELOPMENT AND ORGANIC FARMING:** Now we know the harmful effect of chemical-based fertilizers and pesticides on our health. Efforts in evolving technologies which are eco-friendly are essential for sustainable development. Organic farming is the alternative. Organic agriculture is a whole system of farming that restores, maintains and enhances the ecological balance.

   Organic food is growing in popularity across the world. Many countries have around 10+% of their food system under organic farming. Organic foods command higher price of around 10-100 per cent than conventional ones. Organic farming generates good returns. Organically grown food has more nutritional value than chemical farming thus providing us with healthy foods.

Chapter 7
EMPLOYMENT: GROWTH,
INFORMALISATION AND OTHER ISSUES

1. Work plays an important role in our lives as individuals and as members of society. People work for 'earning' a living. Being employed in work gives us a sense of self-worth and enables us to relate ourselves meaningfully with others. Every working person is actively contributing to national income and hence, the development of the country by engaging in various economic activities. We also have a sense of accomplishment when we work to meet the requirements.

2. **WORKERS AND EMPLOYMENT**: Those activities which contribute to the gross national product are called economic activities. All those who are engaged in economic activities are workers. Workers also include all those who help the main workers in these activities. Those who are self-employed are also workers.

   During 2004-05 India had about a 460 million strong workforce. The proportion of workforce residing in villages is higher. The rural workers constitute about three-fourth of this 460 million. Men form the majority of workforce in India. About 70 % of the workers are men and the rest are women. Women workers account for one-third of the rural workforce whereas in urban areas, they are just one-fifth.
   Worker-population ratio is an indicator which is used for analyzing the employment situation in the country.

Gender	**Worker-Population Ratio**		
	Total	Rural	Urban
Men	54.6	54.7	54.3
Women	22.8	26.1	13.8
Total	39.2	40.8	35.0

3. **SELF-EMPLOYED AND HIRED WORKERS**: Workers who own and operate an enterprise to earn their livelihood are known as self-employed. About half of the workforce is in the category of self-employed. 34 per cent of India's workforce is casual wage Labourers.

4. **REGULAR SALARIED EMPLOYEES**
   When a worker is engaged by someone or an enterprise and paid his/ her wages on a regular basis, they are known as regular salaried employees.

5. **EMPLOYMENT IN FIRMS, FACTORIES AND OFFICES**:
In the course of economic development of a country, labour flows from agriculture and other related activities to industry and services.
Distribution of Workforce by Industry 2009-10:-

Industrial Category	**Place of Residence**		**Gender**		**Total**
	Rural	***Urban***	***Male***	***Female***	
Primary sector	68	8	47	69	53
Secondary sector	17	34	34	16	22
Tertiary sector	15	58	19	15	25
Total	100	100	100	100	100

6. **GROWTH AND CHANGING STRUCTURE OF EMPLOYMENT**: During the period 1960-2000, GDP of India grew positively and was higher than the employment growth. During this period, employment grew at a stable rate of about 2%. Late 1990s show growth in GDP but no growth in employment. This period was jobless growth. Developing strategies have aimed at reducing the proportion of people depending on agriculture. In 1973 about 74 per cent of workforce was engaged in primary sector in 2010 this proportion declined to 53 per cent. Share of secondary and service sectors are increasing with time.

7. **INFORMALISATION OF INDIAN WORKFORCE**: It has been envisaged that the surplus workers from agriculture will move to industrial sector with better standard of living. But even after 55 years of independence more than half of the Indian workforce depends on farming as the major source of livelihood. Over the years the quality of employment has been deteriorating.
The government through its labour laws try to protect the rights of labour. Workforce forms trade unions, bargains with employers for better wages and other social security measures. Workers in formal sector are able to fight for their rights. All the public sector establishments and those private sector establishments which employ 10 hired workers, or more are called formal sector establishments. Informal sector includes millions of farmers, agricultural Labourers, owners of small enterprises and people working in those enterprises as also self-employed who do not have any hired workers. It also includes all non-farm casual wage Labourers who work for more than one employer such as construction workers and headload workers.
Those who are working in the formal sector enjoy social security benefits. They earn more than those in informal sector. As the economy grows more and more workers would become formal sector workers.
There are about 460 million workers in the country. There are about 29 million workers in the formal sector. Workers and enterprises in the informal sector do not get regular income. They do not have any protection or regulation from government. Owing to the efforts of the (ILO) International Labour Organization and the Indian government has initiated the modernisation of informal sector enterprises and provision of social security measures to informal sector workers.

8. **UNEMPLOYMENT**: NSSO defines unemployment as a situation in which all those who, owing to lack of work, are not working but either seek work through employment exchanges, intermediaries, friends or relatives or by making applications to perspective employers or express their willingness or availability for work under the prevailing condition of work and remunerations. There are three sources of data on unemployment:
1. Reports of Census of India
2. National Sample Survey Organization's Reports of Employment and Unemployment Situation
3. Directorate General of Employment and Training Data of Registration with Employment Exchanges.

9. **DISGUISED EMPLOYMENT**: In 1950s one third of agricultural workers in India were working as disguised. It is when more than required persons working for the same output.

10. **SEASONAL UNEMPLOYMENT**: Work in agriculture is seasonal. When there is no work to do on farms, people go to urban areas and look for jobs. This kind of unemployed is known as seasonal unemployment.

11. **GOVERNMENT AND EMPLOYMENT GENERATION**: GOVT. comes out with various schemes for creating employment.
    The National Rural Employment Guarantee Act 2005 was enacted to ensure 100 days of guaranteed wage employment to all rural households who volunteer to do unskilled manual work. This scheme is one of the many measures' governments implement to generate employment for those who need jobs in rural areas.
    All these programmes aim at providing not only employment but also services in areas such as primary health, primary education, rural drinking water, nutrition, assistance for people to buy income and employment generating assets, development of community assets by generating wage employment, construction of houses and sanitation, assistance for constructing houses, laying of rural roads, development of wastelands/degraded lands.

CHAPTER 8
INFRASTRUCTURE

1. Infrastructure provides supporting services in the main areas of industrial and agricultural production, domestic and foreign trade and commerce. These services include roads, railways, ports, airports, dams, power stations, oil and gas pipelines, telecommunication facilities, the country's educational system including schools and colleges, health system including hospitals, sanitary system including clean drinking water facilities and the monetary system including banks, insurance and other financial institutions.

2. Some of these facilities have a direct impact on production of goods and services while others give indirect support by building the social sector of the economy. *Economic infrastructure*: infrastructure associated with energy, transportation and communication
   Social infrastructure: Infrastructure related to education, health and housing

3. Infrastructure is the backbone of modern industrial economy. Modern agriculture also depends on infrastructure for speedy and large-scale transport of seeds, pesticides, fertilizers and the produce using modern roadways, railways and shipping facilities. In recent times, agriculture also depends on insurance and banking facilities because of its need to operate on a very large scale.

4. Infrastructure contributes to economic development of a country both by increasing the productivity of factors of production and improving the quality of life of its people.

5. **INFRASTRUCTURE IN INDIA**: Traditionally the government has been solely responsible for the development of infrastructures. However, government is having shortage of funds. Private sector has started playing a big role in developing infrastructure along with the government through PPP model.
   Rural areas are lacking in infrastructure both economic and social. Not all households have electricity, facility of drinking water and access to health services.
   India invests only 5% of its GDP on infrastructure.
   Some economists have projected that India will become the third biggest economy in the world a few decades from now. For that happen, India will have to boost its infrastructure investment.
   Development of infrastructure and economic development go hand in hand.
   Industrial progress depends on the development of power and electricity generation, transport and communications.

6. ENERGY: Energy is a critical aspect of the development process of a nation. It is essential for industries. Energy is used on a large scale in agriculture and related areas like production and transportation of fertilizers, pesticides and farm equipment.

SOURCES: There are commercial and non-commercial sources of energy. Commercial sources are coal, petroleum and electricity as they are bought and sold.
Non-commercial sources of energy are firewood, agricultural waste and dried dung. These are non-commercial as they are found in nature/forests.
More than 60% of Indian households depend on traditional sources of energy for meeting their regular cooking and heating needs.
Both commercial and non-commercial sources of energy are known as conventional sources of energy.
There are three other sources of energy which are commonly termed as non-conventional sources- solar energy, wind energy and tidal power.

COMMERCIAL PATTERN OF COMMERCIAL ENERGY: In India, commercial energy consumption makes up about 74% of the total energy consumed in India. This includes coal with the largest share of 54% followed by oil at 33% natural gas at 9% and hydro energy at 3%. Non- commercial energy sources consisting of firewood, cow dung and agricultural waste account for over 26% of the total energy consumption.
Major issue is India's import of oil.

TRENDS IN SECTORAL SHARE OF COMMERCIAL ENERGY CONSUMPTION IN %

Sector	1954	1971	1991	2013
Household	10	12	12	22
Agriculture	01	03	08	18
Industries	40	50	45	45
Transport	44	28	22	2
Others	5	7	13	13
Total	100	100	100	100

POWER/ELECTRICITY: Electricity is the critical component of infrastructure that determines the economic development of a country. For 8% of GDP growth we need to grow around 12 % annually.
In the year 2011, the Power Generation in India was:
Thermal 65%
Hydel 32.5%
Nuclear 2.5%
Global average for Nuclear is 13%
Power loss during transmission is a big issue in India. Power is stolen too.
India is adding every year 20,000MW power

7. HEALTH: Health is not only absence of disease but also the ability to realise one's potential. Development of health infrastructure ensures a country of healthy manpower for production of goods and services. Health is the holistic process related to the overall growth and development of the nation. Public health is measured by indices like infant mortality rate, maternal mortality rates, life expectancy and nutrition levels and the incidence of communicable and non-communicable diseases. Health infrastructure includes hospitals, doctors, nurses, and other para-medical professionals, beds, equipment required in hospitals and a well-developed pharmaceutical industry.
Over the years, India has built up a vast health infrastructure and manpower at different levels.
During 1951-2010, nursing personnel increased from 0.18 to 14.31 lakh and allopathic doctors from 0.62 to 6 lakhs.

Expansion of health infrastructure has resulted in the eradication of smallpox, guinea worms and near eradication of Polio and leprosy.

Public Health Infrastructure in India

Item	1951	1981	2000
Hospitals	2694	6805	15888
Beds	1,17,000	5,04,538	7,19,861
Dispensaries	6,600	16,745	23,065
PHCs	725	9115	22,842

Private sector health infrastructure has grown by leaps and bounds. More than 70% hospitals in India are run by the private sector. Nearly 60% of dispensaries are run by private sector.

HEALTH SYSTEM IN INDIA: Three-tier system; Primary, secondary and tertiary. Primary health care includes education concerning prevailing health problems and methods of identifying preventing and controlling them, promotion of food supply and proper nutrition and adequate supply of water and basic sanitation maternal and child health care, immunization against major infectious diseases and injuries, promotion of mental health and provision of essential drugs.
Auxiliary Nursing Midwife (ANM) is the first person who provides primary healthcare in rural areas.
Primary Health Centres and Community Health Centres have been set up in villages. When the condition of a patient is not managed by PHCs they are referred to secondary or tertiary hospitals. Secondary hospitals have facilities like X-ray, Electro Cardio Gram (ECG) and surgery. The tertiary sector also includes many premier institutes which not only impart quality medical education and conduct research but also provide specialized health care.

MEDICAL TOURISM: is a great opportunity. In 2004-05 as many as 1.5 lakh foreigners visited India for medical treatment. It has growth potential of 15% increase every year.

INDIAN SYSTEMS OF MEDICINE:
AYURVEDA
YOGA
UNANI
SIDDHA
NATUROPATHY
HOMEOPATHY (AYUSH)
There are more than 7 lakh registered practitioners in India.

INDICATORS OF HEALTH IN INDIA IN COMPARISON WITH OTHER COUNTRIES 2010

Indicators	**India**	**China**	**USA**	**Sri Lanka**
Infant Mortality Rate/1000 live births	47	13	6.5	10.5
Under-5 mortality/1000 live births	61.3	14.6	7.5	12.2
Births by skilled attendants % of total	53	99	99	99
Fully immunized	72	99	99	99
Health expenditure as % of GDP	3.9	5.2	17.9	3.4
Government health spending to total government spending	4.4	10.3	18.7	7.9
Out of pocket expenditure as a % of private expenditure on health	86	79	21	83

One study points out that India has about 17 per cent of the world's population but it bears 20% of global burden of diseases. (GBD). More than half of GBD is accounted for communicable diseases such as diarrhea, malaria and tuberculosis.

Every year around 5 lakh children die of water-borne diseases. Malnutrition and inadequate supply of vaccines lead to the death of 2.2 million children every year.

The poorest 20% of Indians living in both urban and rural areas spend 12 per cent of their income on health care while rich spend only 2 per cent.

WOMEN'S HEALTH: Women constitute about half the total population in India. They suffer many disadvantages as compared to men in the areas of education, participation in economic activities and health care. The deterioration in the child sex ratio in the country from 927 in 2001 to 914, as revealed by the census of 2011, points to the growing incidence of female foeticide in the country. Close to 3 lakh girls under the age of 15 are not only married but have already borne children at least once. More than 50 per cent of married women between the age group of 15 and 49 have anaemia and nutritional anaemia caused by iron deficiency, which has contributed to 19 per cent of maternal deaths. Abortions are also a major cause of maternal morbidity and mortality in India.

Chapter 9
ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

1. Economic development achieved so far is at a huge cost of environmental quality. We need to choose a path of sustainable development.

2. **FUNCTIONS OF ENVIRONMENT**:
- Supplies of resources
- it assimilates waste
- it sustains life by providing genetic and biodiversity
- it also provides aesthetic services like scenery etc.

3. The environment is able to perform these functions without any interruption as long as the demand on these functions is within it carrying capacity. But our resource extraction is higher than the rate of regeneration of resources and we are into environmental crisis.

4. Many resources have become extinct and the wastes generated are beyond the absorptive capacity of the environment. Absorptive capacity means the ability of the environment to absorb degradation.

5. We are compelled to spend huge amounts on technology and research to explore new resources.

6. There is also a huge health costs of degraded environmental quality- decline in air and water quality have resulted in increased incidence of respiratory and water-borne diseases.

7. Global warming and ozone depletion also contribute to increased financial commitments for the government.

8. There has been reversal of supply-demand relationship for environmental quality. We are faced with increased demand for environmental resources and services, but their supply is limited due to overuse and misuse. Hence the environmental issues of waste generation and pollution have become critical today.

9. ***INDIA'S RESOURCES***: India has abundant natural resources in terms of rich quality of soil, hundreds of rivers and tributaries, lush green forests, plenty of mineral deposits beneath the land surface, vast stretch of the Indian Ocean, ranges of mountains, etc. The black cotton soil of the Deccan Plateau is particularly suitable for cultivation of cotton, leading to concentration of textile industries in this region. The Indo-Gangetic plains-spread from the Arabian Sea to the Bay of Bengal-are one of the most fertile, intensively cultivated and densely populated regions in the world. India's forests, though unevenly distributed, provide green cover for a majority of its population and natural cover for its wildlife. Large deposits of iron-ore coal and natural gas are found in the country. India alone accounts for nearly 20% of the world's total iron-ore reserves, Bauxite, copper, chromate, diamonds, gold, lead, lignite, manganese, zinc, uranium, etc. are also available in different parts of the country.

10. **GLOBAL WARMING:** Global warming is a gradual increase in the average temperature of the earth's lower atmosphere as a result of the increase in greenhouse gases since the Industrial Revolution. Much of the recent observed and projected global warming is human-induced. It is caused by man-made increases in carbon dioxide and other greenhouse gases through the burning of fossil fuels and deforestation. The atmospheric concentrations of carbon dioxide and Methane have increased by 31 per cent and 149 per cent respectively above pre-industrial levels since 1750. During the past century, the atmospheric temperature has risen by 0.6^0C and sea level has risen several inches.

    Some of the longer-term results of global warming are melting of polar ice with a resulting rise in sea level and coastal flooding, disruption of drinking water supplies dependent on snow melts, extinction of species as ecological niches disappears; more frequent tropical storms; and an increased incidence of tropical diseases.

    Among factors that may be contributing to global warming are the burning of coal and petroleum products: sources of carbon dioxide, methane, nitrous oxide, ozone; deforestation: which increases the amount of carbon dioxide in the atmosphere, methane gas released in animal waste, and increased cattle production, which contributes to deforestation, methane production and use of fossil fuels.

    A UN conference on climate change held in Kyoto Japan, in 1997, resulted in an international agreement to fight global warming which called for reductions in emissions of greenhouse gases by industrialized nations.

11. **OZONE DEPLETION**: Ozone depletion refers to the phenomenon of reduction in the amount of ozone in the stratosphere. The problem of ozone depletion is caused by high levels of chlorine and bromine compounds in the stratosphere. The origin of these compounds are chlorofluorocarbons (CFC) used as cooling substances in air- conditioners and refrigerators, or as aerosol propellants, and bromoflurocarbons (Halons) used in fire extinguishers. As a result of depletion of the ozone layer, more ultraviolet (UV) radiation comes to Earth and causes damage to living organisms. UV radiations seems responsible for skin cancer in humans, it also lowers production of phytoplankton and thus affects other aquatic organisms. It can also influence the growth of terrestrial plants.

    A reduction of approximately 5% in the ozone layer was detected from 1979 to 1990.

    Since the ozone layer prevents most harmful wavelengths of ultraviolet light from passing through the Earth's atmosphere, observed and projected decreases in ozone have generated worldwide concern. This led to the adoption of the Montreal Protocol banning the use of chlorofluorocarbon (CFC) compounds, as well as other ozone depleting chemicals such as carbon tetrachloride, trichloroethane also known as methyl chloroform and bromine compounds known as halons.

12. **POLLUTION CONTROL BOARDS:** The GOI set up the Central Pollution Control Board (CPCB) in 1974 to address two major environmental concerns in India viz. water and air pollution.

The states also established the Boards to address all environmental concerns.

They investigate, collect and disseminate information relating to water, air and land pollution, lay down standards for sewage/trade effluent and emissions. These boards provide technical assistance to governments in promoting cleanliness of streams and wells by prevention, control and abatement of water pollution, and improve the quality of air and to prevent, control or abate air pollution in the country. The PCBs prepare manuals, codes and guidelines relating to treatment and disposal of sewage and trade effluents.

State Boards periodically inspect every industry under their jurisdiction to assess the adequacy of treatment measures provided to treat the effluents and gaseous emissions. It also provides air quality data needed for industrial sitting and town planning.

The pollution control boards collect, collate and disseminate technical and statistical data relating to water pollution. They monitor the quality of water in 125 rivers including tributaries, wells, lakes, creeks, ponds, tanks, drains and canals.

13. **SUSTAINABLE DEVELOPMENT:** Environment and economy are interdependent. We need sustainable development. Sustain development will allow future generations to have a potential average quality of life that is at least as high as that which is being enjoyed by the current generation. United Nations Conference on Environment and Development (UNCED) which defined it as- Development that meets the need of the present generation without compromising the ability of the future generation to meet their own needs. Sustainable development aims at decreasing the absolute poverty of the poor by providing lasting and secure livelihoods that minimize resource depletion, environmental degradation, cultural disruption and social instability.

Sustainable development is a development that meets the basic needs of all particularly the poor majority, for employment, food, energy, water, housing, and ensures growth of agriculture, manufacturing, power and services to meet these needs.

14. **BRUNDTLAND COMMISSION**: The Brundtland Commission emphasizes on protecting the future generation. We have a moral obligation to hand over the planet earth in good order to the future generation.

We should have development ensuring:
- conservation of natural assets
- preservation of the regenerative capacity of the world's natural ecological system
- avoiding the imposition of added costs or risks on future generations

According to Herman Daly, a leading environmental economist, to achieve sustainable development, the following needs to be done:
1. Limiting the human population to a level within the carrying capacity of the environment. The carrying capacity of the environment is like a 'plimsoll line' of the ship which is its load limit mark. In the absence of the plimsoll line for the economy, human scale grows beyond the carrying capacity of the earth and deviates from sustainable development
2. Technological progress should be input efficient and not input consuming
3. Renewable resources should be extracted on a sustainable basis, that is, rate of extraction should not exceed rate of regeneration
4. For non-renewable resources rate of depletion should not exceed the rate of creation of renewable substitutes and
5. Inefficiencies arising from pollution should be corrected.

15. STRATEGIES FOR SUSTAINABLE DEVELOPMENT:

1. *Use of non-conventional Sources of energy*: India hugely dependent on thermal and hydro powers. Thermal power plants emit large quantities of carbon dioxide which is a greenhouse gas. It also produces fly ash which if not used properly can cause pollution of water bodies, land and other components of the environment. Hydroelectric projects inundate forests and interfere with the natural flow of water in catchment area and the river basins. Wind power and solar rays are good examples of cleaner and greener energy sources, but it is not used extensively.

2. *LPG, Gobar Gas in Rural Areas*: Households in rural areas generally use wood, dung cake or other biomass as fuel. This practice has many adverse implications like deforestation, reduction in green cover, air pollution. Subsidized LPG is provided. Gobar gas plants are being provided. LPG is clean fuel. It reduces household pollution to a large extent. Cattle dung is used in gobar gas plant. Gas produced is used as fuel. Left over slurry is used as organic fertilizers and soil conditioner.

3. *CNG in urban areas*: CNG is used in public transport system. It has helped in controlling pollution in major cities.

4. *Wind power*: In areas of wind blowing at high speed wind mills can provide electricity without impacting environment.

5. *Solar Power*: With the help of photovoltaic cells solar energy can be converted into electricity. This way of generation of electricity is pollution free.

6. *Mini-hydel plants*: In mountainous regions, streams are running across. Many streams are perennial. Mini-hydel plants can be used to produce electricity. Enough power can be generated for local use.
   India is privileged to have about 15,000 species of plants which have medicinal properties.
   These are also useful in cosmetic products.

7. Bio-composting: Farmers have again started using compost made from organic wastes of different types. Earthworms can convert organic matter into compost faster than the normal composting processes.

8. Bio pest control: use of pesticides based on plant products can be useful in controlling pollution. Neem is proving to be very useful.