

# THE DEVELOPMENT OF AGRICULTURE AND INDUSTRY IN THE SOUTH OF THE U.S.A.

## Cotton growing in the South of the USA

Cotton is a flowering shrub which is an annual crop grown from seeds. Cotton plant produces cotton bolls made of lint. The cotton produces an important vegetable fibre that is used in the textile industry. Cotton in North America is mainly grown in the Southern parts of the United States of America. The Southern states of United States of America are known as the Cotton Belt. Cotton has been in the United States of America for hundreds of years and used to cover 60% of its total farmland. Today the Cotton Belt only covers about 18% of the total farmland giving room to other crops like soya beans, corn [maize], tobacco, and other economic activities like mining and industrialization. Despite the reduction of the farmland under cotton, United States of America is still among the major cotton producing countries of the world as illustrated below:

**Table 1 showing the contribution of various countries to cotton production in the world**

Country	Percentage of cotton production
Russia	15
China	14
United States of America	12
India	10
Sudan	05
Others	44
<b>Total</b>	<b>100</b>

*Draw a pie chart (divided circle) to portray the information in the table above.*

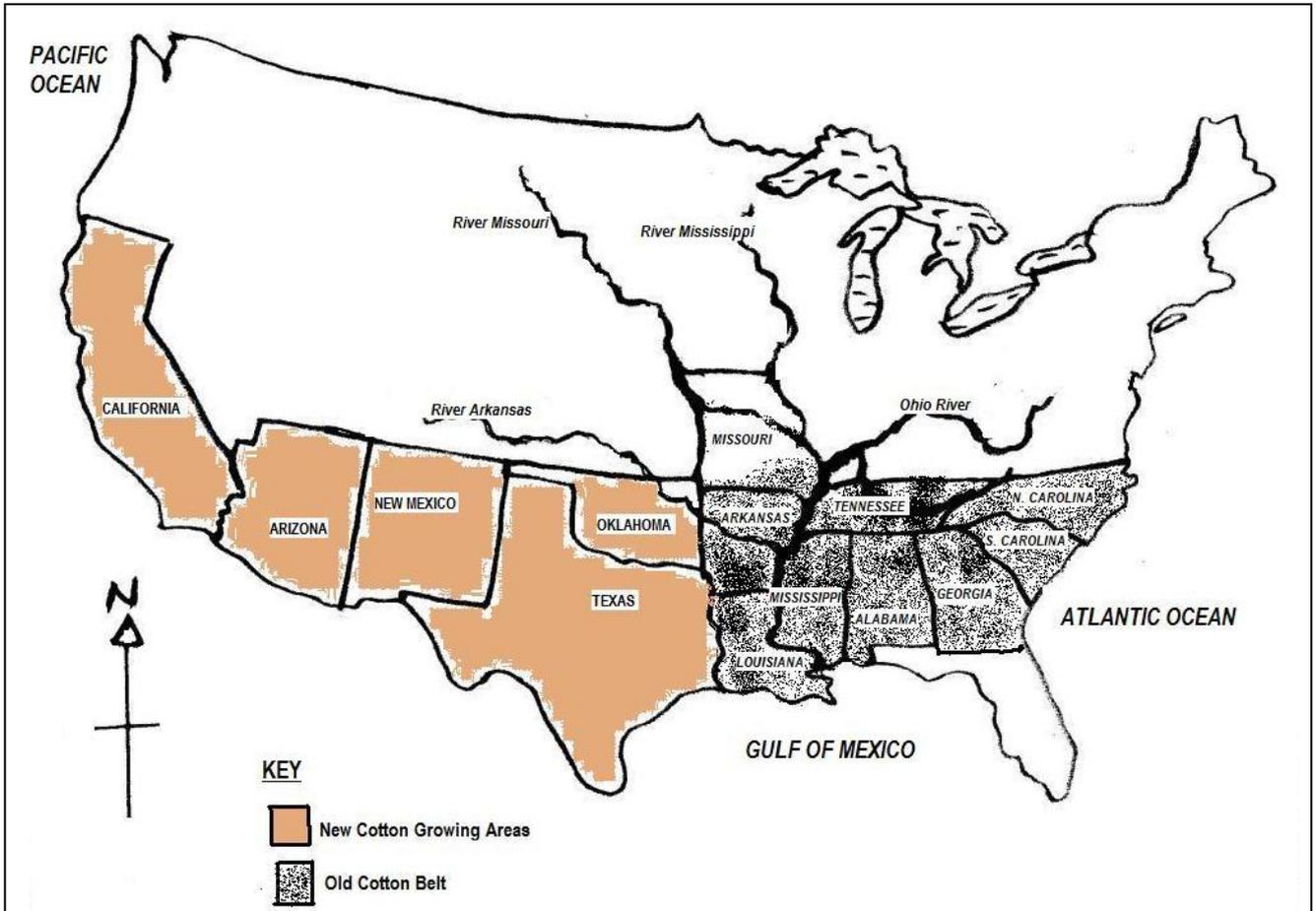
At first the cotton belt was concentrated in the Eastern States of Alabama, Georgia and South Carolina. It then moved westwards establishing itself in the lower lands of the Mississippi basin then in the lowland areas of Eastern Texas. It also extended to the drier western areas of California, Arizona and New Mexico.

## **The major cotton producing/growing regions/ areas in the Southern states of the United States of America**

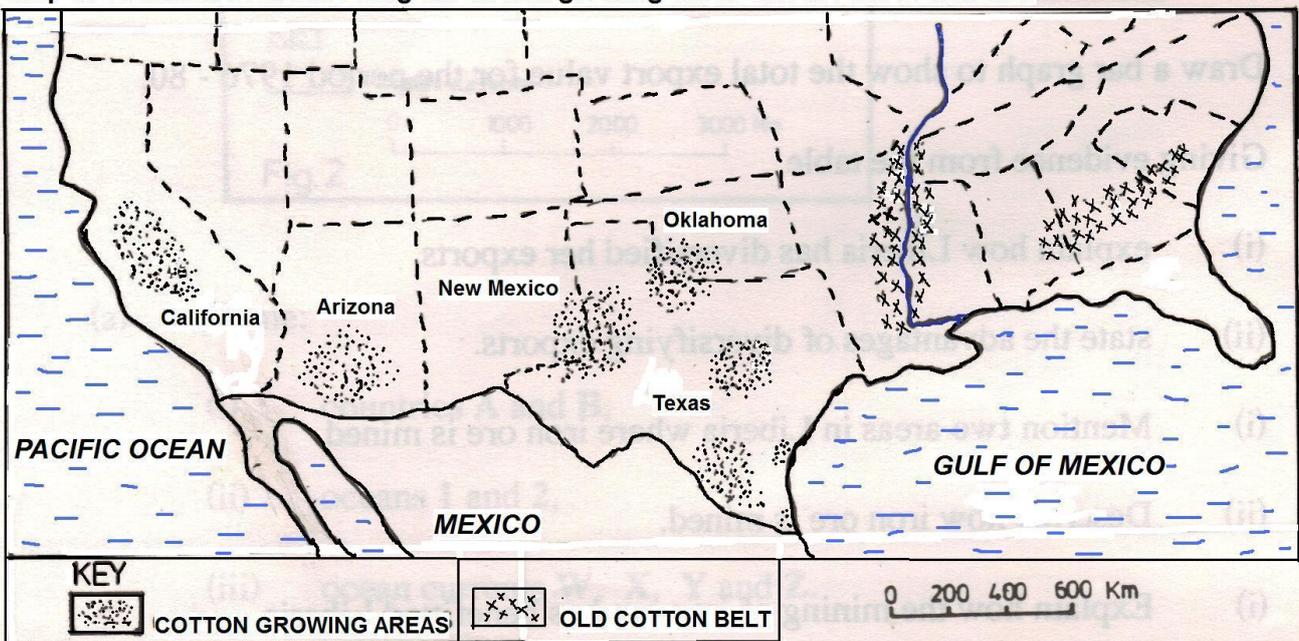
There are **two** major cotton growing regions/belts. These include:

1. **The old cotton growing belt:** includes the following areas:
  - Atlantic inner coastal plains of Georgia, North Carolina and South Carolina states,
  - Piedmont of Georgia, North Carolina and South Carolina states,
  - Tennessee Valley in Alabama State,
  - Mississippi Flood Plain in Mississippi State,
  - Red Prairies or High plains of Oklahoma State,
  - Mississippi Flood Plain and Red river plain in Louisiana State,
2. **The new cotton growing belt:** includes the following areas:
  - Black Waxy Prairies, Northwest Texas or High Plains of Texas, lower valley of the Rio Grande and southern Texas coastal plain in Texas State,
  - Rio Grande river valley and Pecos river valley in New Mexico State,
  - Salt River valley in Arizona State and
  - San Joaquin valley in California State in the southwest of America as illustrated below:

The sketch map of the Southern states of United States of America showing the cotton growing areas



Map of southern U.S.A showing the cotton growing areas and the old cotton belt



## **Climate:**

The cotton growing areas experience a warm temperate eastern margin climate [Gulf type of climate]. The area receives ample rainfall ranging from 500mm-1000mm. On average the rainfall is well distributed during the growing season, warm temperatures of about 24°C [75°F] with 200 frost free days.

## **Historical Development in the old cotton belt**

Cotton growing started in the 18<sup>th</sup> century in the South eastern United States of America. At first large farms or plantations were owned by single family concentrating mainly on a single cash crop. Thousands of “**Negroes**” were brought from Africa as slave labour to work on the cotton plantations because the temperatures were too hot for the **white** settlers to harvest the cotton themselves.

In the 19<sup>th</sup> century, slavery was abolished in the South after the America civil war and the slaves were recognized as free citizens of United States of America. After the abolition of slavery labour, **share cropping** system was introduced.

Although, slavery was abolished in the 19<sup>th</sup> century, blacks were poor and underprivileged and had no land. They were forced to offer their labour to the white landlords cheaply. Under the share cropping system, the white landlords subdivided their land into small plots and rented them to the freed slaves. The blacks paid the rent in **kind** by giving half of what they had produced to the landlords.

**The share cropping system collapsed in the South because of the following reasons:**

- Introduction of the mechanized farming whereby the cotton farms were highly mechanized
- During the World War 1 and 2, many blacks joined the USA army or industrial sector.
- Monoculture led to soil exhaustion.

## **Factors favouring cotton growing in United States of America**

There are several factors favouring cotton growing in USA and these include:

### **The physical factors:**

- Suitable sub-tropical climate with warm temperatures of about 24°C for ripening of the cotton and harvesting of cotton lint or dry sunny weather for the ripening and then harvesting for the cotton lint.
- It requires a period free from frost because cotton is highly susceptible to damage by frost.
- Moderate-heavy rainfall ranging from 500mm – 1000mm which falls in the growing season.
- Presence of well drained deep fertile soils like clay loam soils in the East Atlantic coastal areas and alluvial soils in the Mississippi plains, Tennessee valley and Missouri valley.
- Presence of water bodies like rivers which provide water for irrigation farming during the dry season like Mississippi, Colorado and Tennessee.
- Presence of large tracts of land for the growing of cotton on large scale.
- Gently sloping landscape or undulating landscape favouring mechanization, cotton growing, construction of transport and communication networks.

### **Socio-economic factors:**

- Availability of abundant cheap labour provided by the blacks and migrant labour from Latin America to work on the cotton farms.
- Presence of ready market for cotton and cotton products i.e. internal and external markets.
- Availability of adequate capital invested in cotton growing, processing and distribution.
- Use of appropriate technology or advanced technology in the cotton growing and processing like scientific methods of farming and mechanization.
- Favourable government policy of mechanizing and modernizing agricultural practices in the different states growing cotton and other crops.

- Improved/efficient transport and communication networks.
- Scientific research has led to the development of high grade cotton and extending it to the new areas.
- Use of modern farming methods like irrigation farming.

### **Uses of cotton**

- Used for the manufacture of textiles and clothes.
- Cotton seeds are used for the production of cotton seed oil (edible oil)
- Cotton wool is used in hospitals or medical centres for treatment or surgical purposes.
- Cotton seed residual is used for making animal feeds like cotton seed cake.
- It is used for making mattresses, pillows and cushions.

### **Reasons for the for the shifting of the cotton belt from the old to new cotton growing areas**

The original cotton growing region was in the South Eastern of United States of America and it shifted westward and north westward i.e. from Mississippi to California. The new cotton region is known as the new cotton belt in the areas of Texas, California, Arizona and New Mexico.

However, due to a number of problems, cotton growing in this region has declined considerable and now new crops like soya beans, cereals, and folder crops are grown in addition to other economic activities like industrialization, forestry/lumbering and animal husbandry.

### **Reasons or conditions leading to the decline of cotton growing in the old cotton growing region**

- Soil exhaustion due to monoculture i.e. having grown cotton for so long.
- Shortage of skilled labour to carry out the activities involved in cotton growing.
- Destruction of crops by hurricanes and the resultant floods.
- Pests and diseases like the cotton boll weevils which attack cotton.
- Soil erosion led to excessive exhaustion of the soil due to over cropping or cultivation.
- Strong winds during the autumn season that destroyed the cotton farms.
- Low income obtained by the farmers due to the poor yields resulting from soil exhaustion.
- Presence of several frost days.
- Unexpected rains during harvesting season.
- Reduced labour supply since most of the farm workers had joined the industrial sector well as the army.
- Introduction of new farming systems like mixed farming.
- Introduction of new crops in the old cotton belt like soya beans and corns leading to the decline in the land under cotton growing.

### **Factors favouring cotton growing in the New Cotton Belt**

- Presence of well drained deep fertile soils suitable for cotton growing.
- Absence of pests like the cotton boll weevil. This is because conditions are rather dry and unfavourable for the survival of such pests.
- The gently sloping landscape or flat land eased mechanization on the cotton farms and the construction of transport and communication networks.
- A bright and sunny weather suitable for cotton growing.
- Absence of hurricanes. In addition, storms and floods are limited i.e. there are calm weather conditions.
- Existence of more frost free days that is conducive for cotton growing.

- Presence of rivers like Colorado, and Sacramento which provide water for irrigation of cotton during the dry season.
- Availability of adequate capital to invest in cotton growing, processing and distribution.
- Use of appropriate /advanced technology for proper maintenance and better production.
- Research into better cotton varieties for example drought resistant, disease resistant and high yielding varieties.
- Use of Scientific methods of farming like the use of pesticides and drugs to combat pests and diseases.
- Availability of abundant skilled labour for cotton production.

### **Characteristics of the cotton farms in the new cotton belt**

- They are highly mechanized for example a lot of machinery is used.
- There is irrigation agriculture.
- Scientific methods of farming are practiced.
- Skilled labour is employed on the cotton farms.
- There is high level of agricultural organization.

### **Contributions of cotton growing to the development of U.S.A. and the South;**

- Source of raw materials for agro-based industries like the textile and clothing industries.
- Source of government revenue through taxation.
- Provision of employment opportunities to the people of the South.
- It has led to agglomeration of industries in the South.
- It has promoted the establishment of urban centres like Galveston and Vicksburg.
- Diversification of the economy of the Southern states.
- Tourist attraction i.e. tourists come to view / sightseeing and for research.
- The cotton seeds are used for making cotton seed oil i.e. edible oil.
- Promotion of the livestock farming because the residue of the seeds is used in the making animal feeds known as cotton seed cake.
- Cotton growing has been a source of cotton wool used in medical centres for treatment purposes.
- Source of foreign exchange after the exportation of cotton and cotton products to other countries like China, Canada and Germany.
- It has contributed to the development of infrastructure such as road and railway networks.

### **Problems of cotton growing in the South**

- There has been soil exhaustion leading to loss of soil fertility due to monoculture.
- Unreliable rainfall leading to moisture problems.
- Stiff competition with other cotton producing countries like China and India leading to price fluctuations on the world market.
- Over production of cotton leading to price fluctuations
- Increased pressure on land due to urbanization hence reducing the land under cotton growing.
- Problem of frost that damages the cotton bolls.
- Storms or hurricanes and floods that cause massive destruction of the cotton fields.
- Shortage of labour supply because of preference of labour to work elsewhere.
- Pests and diseases leading to poor cotton yields.

### **Possible solutions to the problems**

- Carrying out crop rotation and putting land under fallow in “soil banks”
- Irrigation to overcome moisture problems.

- Employing erosion preventive measures like strip crop and contour ploughing.
- Hot air or steam has been sprayed so as to warm the environment.
- Use of machinery in order to solve labour problems.
- Use of pesticides and drugs to overcome problem of pests and diseases.

### **New Developments or changes in the old cotton belt**

- Industrialization has taken place: examples of the industries found in the old cotton belt are chemical industries, textiles, cigarette manufacture and oil refining industry.
- Introduction of modern farming methods like scientific and mechanized farming.
- Introduction of a variety of new crops like soya beans, cereals, hay or fodder crops, vegetables, and rice.
- There has been the introduction of animal husbandry for example beef and dairy cattle are reared as well as piggery and poultry farming.
- Forestry has been practiced. Areas have been grown with trees to provide forestry products.
- Mining of the different minerals like oil in Texas and phosphates in Florida.

### **Comparative study: Cotton growing in East Africa**

Cotton is grown on small scale in East Africa. Cotton growing areas in East Africa include:

- **Uganda** – Jinja, Kamuli, Soroti, Gulu, Apac, Arua, Kumi, Paliisa, Kasese and Soroti
- **Kenya** - Nyanza province, Lower Tana, Kirinyaga, Busia, Kilifi, Kitui, Machakos
- **Tanzania** – South East Mwanza, Western Tanzania

**NB:** Cotton in East Africa is mainly grown in Uganda and organic farming is practiced.

In East Africa, the cotton growing farm is characterized by the following;

- Use of family and waged labour to cultivate the land, weeding, harvesting cotton.
- It is Rain fed agriculture.
- Cotton farms are relatively small.
- Traditional methods of farming like shifting cultivation are employed.
- Unskilled labour is used.
- There is use of simple tools like digging sticks, hand hoes.

Today cotton farming is of less importance because of the following reasons:

- a) Stiff competition from the other cotton producing countries.
- b) Pests and diseases.
- c) Low pay to the cotton farmers.
- d) Collapse of the co-operatives societies in Uganda.

### **Mining in the Southern states of United States of America**

Mining is one the major economic activities carried out in the southern states of United States of America. There are several minerals mined in the South and these include the following:

- i. **Oil:** it occurs in many parts of USA, but there are four major oil regions in the south;
  - Mid-continent region in Northern Texas and Oklahoma which is the largest oil producing area in USA.
  - The Gulf coastal region found in the southern Texas, Mississippi, Alabama and Louisiana.
  - Rocky mountain region found in the New Mexico state.
  - California region found in the southern is the third largest oil producing region.

U.S.A produces 25% of world's oil supply. Oil is mined using drilling method.
- ii. **Natural gas:** This is mined in most of the oil producing state of Texas, California, and Louisiana. The gas lies in the rock space just above the oil bearing rock.
- iii. **Coal:** it is found in five major areas like

- Eastern province: southern Appalachian coal fields of Alabama and Tennessee.
  - Interior province: Missouri coal fields, south-western coal field in Texas.
  - Gulf province in Texas and Alabama,
  - Rocky mountain coal reserves and
  - California coal fields.
- iv. **Iron ore:** It is found in Alabama and California states in San Francisco and Los Angeles.
- v. **Copper** in New Mexico and Arizona.
- vi. **Gold** in New Mexico, Arizona and California states.
- vii. Others: **salt/potash** in Florida, **bauxite** in Alabama and **silver** in Arizona.

*Draw a sketch map of S.E. coast showing the main coal and oil mining areas.*

## **Factors favouring the development of the mining industry in the South**

- Presence of rich and large mineral deposits of crude oil in Northern Texas and Oklahoma and other minerals like natural gas, iron ore, coal and copper.
- Presence of adequate capital provided by the USA government and private sector used in the extraction, processing, marketing and distribution of minerals.
- Presence of reliable market for the minerals in different parts of the world for example local market is provided by manufacturing sector and international market is provided by European and Asian countries.
- The presence improved transport and communication networks. Most the mining areas are well served with roads/high ways, railway lines, pipelines to transport oil and natural gas.
- Availability of ready sources/wide variety of power or energy in the USA for example there are several thermal and HEP stations constructed to provide power for mining areas.
- Presence of abundant skilled and migrant labour employed in the mining sector.
- Advanced technology used in the mining activities like use of drilling method in oil exploitation and placer method for gold mining.
- Nearness of the minerals to the earth's surface has eased its extraction using open cast method
- Geological and geo-physical surveys carried out by the mineral departments of the U.S.A.
- Favourable government policies like liberalization and the promotion of the sector for export have led to the development the sector.
- Presence of water bodies like rivers and lakes, which provide water, used in the processing of minerals and rivers generate hydro electrical power used in processing of the minerals.

## **Importance of the mining industry in the South**

- Provision of foreign exchange to the USA government after the exportation of the minerals to other countries.
- Development of industries: minerals provide the basic raw materials for the manufacturing industries for example the extraction of oil from Mid-continent region in Northern Texas and Oklahoma oil fields has led to the development of petro-chemical industries and oil refining industries.
- The mining sector generates revenue to the USA government because the government gets revenue from exportation of minerals and taxes on companies that deal with minerals.
- It provides employment to the people of USA. This has led to improved standard of living and increased the purchasing power of the miners.
- Mining has improved upon the infrastructure of USA. Mining areas are served with improved and well maintained roads and railway networks, electricity and telephone services.
- It has led to the development of towns like San Francisco and Los Angeles.

- It has led to diversification of the economy of USA thereby reducing reliance on a few sectors like tourism, forestry and fishing.
- Mining has promoted international relations and co-operation.
- It has boosted tourism in USA because mining sites are tourist attractions.
- It has facilitated the exploitation of other resources for example underground mining has facilitated the exploitation of forest resources because timber props are used as pillars to protect the tunnels walls from collapsing.
- It has boosted the agricultural sector by providing ready market to the agricultural produce. This is because the large mining population provides ready market for agricultural and industrial products.
- It has contributed towards research/education.
- Minerals are sources of power/energy for domestic and industrial use for example oil, coal, uranium, natural gas and coal.

### **Negative effects of mining to the environment**

- It has led to destruction of useful agricultural land by the use of open cast mining.
- The open cast mines are affected by severe winter seasons which leading to the filling of the pits with ice making mining very difficult.
- The mining sector has increased pollution of air, water and land by the mineral processing industries.
- It has to the destruction of vegetation cover/deforestation.
- It has led to destruction of habitat for wildlife.
- It has destruction of the Eco-system in the mining areas.
- It has led to the development of urban centers with their associated evils.
- Increasing costs of mining due to the depth of the minerals.
- It has led to the loss of the aesthetic value of the landscape as hills are torn down.
- Mining has led to exhaustion of some mineral in the USA.

### **Industrial development in the South**

The major industrial regions found in the southern states of USA are:

- **The South Atlantic Region**

This manufacturing belt stretches across the states of Georgia, South Carolina and Virginia. The important industrial towns here are Richmond, Raleigh, Augusta, Macon, the ports of Savannah and Charlestown.

The major industries are textiles, fruit packing and canning and the freezing of vegetables. Others include textile mills, paper industry and Oil refineries.

- **The Southern Appalachian Region**

It is found in the state of Alabama is situated the southern Appalachian industrial region. It stretches from Birmingham to Atlanta; but also covers several others nearby towns like Bessemer, Anniston and Gadsden. This region is known for producing steel and steel products such as machinery. The manufacture of textiles and chemicals has also become important.

- **Eastern Texas Industrial Region**

The most important industrial centres are Houston, Dallas and Fort Worth.

The most important industries in Eastern Texas are oil refineries and petrochemical plants, which are based on the local oil fields. Other industries include steel mills, textile mills, aircraft-making, and several agro-based factories.

- **Other Industrial Regions of the Southern United States**

Other manufacturing centres are San Francisco, Los Angeles and San Diego in California State.

## **Types of industries found in the Southern States of USA**

- Textiles
- Food process industries.
- Petro-chemical industries
- Motor vehicle manufacturing
- Engineering industries.
- Wood pulp and paper industries.
- Tobacco and cigarette manufacturing industries.
- Iron and steel industries.
- Oil refining industries.
- Aeronautics and space industry

The aeronautics and space industry activities are based in several parts in the U.S.A for example the space flight Centre is in Huntsville- Alabama. The rocket assembling is in Los Angeles, Rocket engine testing in New Orleans, Flight control in Houston and space craft launching in Cape Kennedy or Canaveral. The Kennedy space Centre of Cape Canaveral was chosen as the launching site for the space craft. Factors which favoured Cape Canaveral for this purpose include the following:

- Sub-tropical climate that is free from frost.
- The latitudinal location: It is closer to the equator where the speed of the earth's rotation is higher. This supplements on the velocity of the rockets in order to escape from the earth's gravitational pull.
- Nearness to the sea ensures safety of life and property on land in case of accident i.e. the rockets will then crash on the sea. It is important to note that the launching is on the Eastern direction.

***Draw a sketch map of the Southern states showing the major industrial centres.***

## **Factors favouring industrial development in the Southern states of USA**

Its industrialization is based on the following factors:

- Presence of reliable source of raw materials like agricultural products and minerals.
- Presence of different sources of energy which is used in running of the machines and in the production line for the manufacturing of the goods.
- Presence of efficient transport and communication networks. The major industrial centres are served by an integrated transport infrastructure of roads, railways, rivers and canals and air ports that provides easy access to markets within and outside America.
- Presence of reliable market for the manufactured goods both internal and external markets because of the high quality goods manufactured.
- Use of advanced technology processing and manufacturing goods.
- Presence of large supply of skilled and semi-skilled labour used in the processing marketing and distribution of manufactured goods.
- Availability of adequate capital provided by multi-national companies used in the construction of the industries, buying of the inputs and advertising of the manufactured goods.
- Presence of abundant water supply from rivers like Tennessee and Colorado for cooling and cleaning of the industrial machines and processing of steel.
- Favourable government policy of USA of encouraging industrialization.
- Political stability has encouraged both internal and foreign investment in the South.
- Need to divert the economy given the fact that much of her land is not suitable for agriculture.

## **Contribution of the industrial sector to the development of the Southern states**

There are several benefits of industrialization and these include:

- It has improved the USA's balance of trade through the exportation of processed commodities which command higher prices in the world market.
- Manufacturing industries provide employment opportunities to the people of USA and from the neighbouring countries Like Mexico.
- It has encouraged diversification of the USA's economy.
- Manufacturing has led to self-sufficiency in manufactured goods.
- It has encouraged efficient and maximum use of the available resources like minerals, forests and water resources.
- It provides market for agricultural and industrial products.
- Industrialization has raised the standards of living since the urban industrial workers have higher and more reliable incomes than farmers.
- It has also stimulated the development of infrastructure and social services.
- It has led to the growth and development of urban areas like Birmingham and Atlanta.
- There is capital inflow from the foreign investors.
- It has promoted the tourist industry.
- Diversification of the economy through inter-sectoral linkages between agriculture and manufacturing industry.
- It has promoted interstate relations.

## **Problems resulting from industrialization**

Industrial development has come along with disadvantages as listed below;

- Environmental pollution of air, water and land through oil spills, dumping of waste, emission of toxic fumes/gases.
- It has led to unemployment due to the use of automated machines.
- Depletion of natural resources like fish and forest resources.
- It has led to de-vegetation of large areas that affects bio-diversity.
- It has led to process of urbanization with its related problems.
- Loss of rich agricultural land through the construction of infrastructure.
- It has led to congestion in urban areas.

## **Energy resources of United States of America**

A number of energy resources are utilized in the United States of America

The USA is the world's leading consumer of power like electric and non-electric power.

The main sources of energy include the following;

- Oil/petroleum
- Natural gas
- Hydroelectric power
- Coal
- Nuclear power from Uranium
- Solar energy mainly used in Texas
- Wind energy mainly used in California

Petroleum and natural gas are the leading or most widely used sources of energy.

**Petroleum has the following advantages:**

- It is indispensable for transport i.e. used to run or propel automobile.
- It is easy to transport i.e. using pipeline.
- It is quite easily and cheaply obtained from underground.
- It is relatively less bulky.

**Natural gas has the following advantages.**

- It pollutes the air less.
- It is cleaner than petroleum.
- It is easy and cheap to transport using pipelines.

**Exercise**

1. Using the statistics provided in Table 1 (in the notes) on the production of cotton in the world, draw a pie chart to illustrate the information.
2. Using an atlas and/or a text book on North America,
  - a) Draw a sketch map of southern U.S.A showing the main coal and oil mining areas.
  - b) Draw a sketch map of southern U.S.A showing the main Industrial centres.