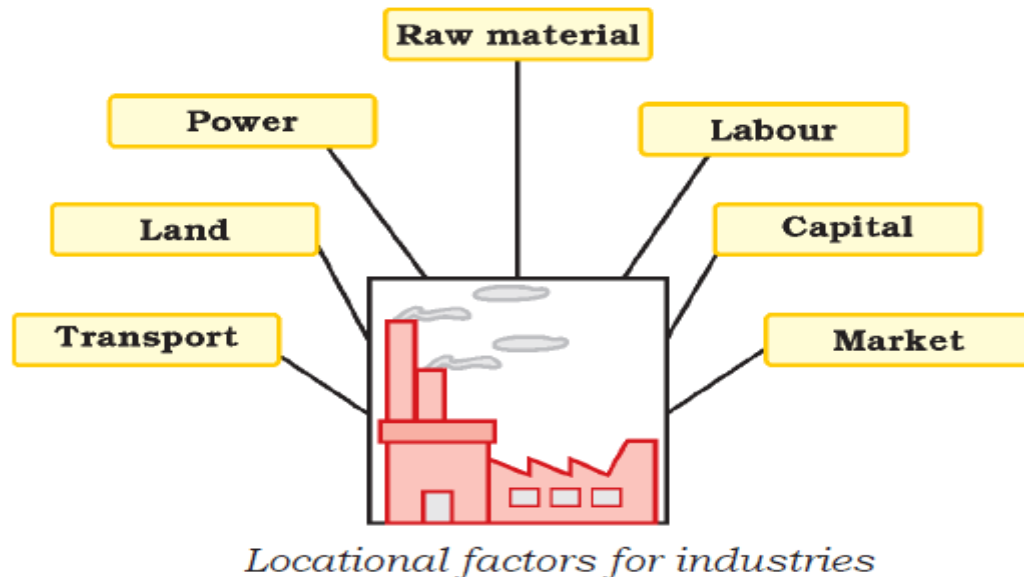


Factors Influencing the Location of Industries

Industrial locations are complex in nature. These are influenced by the availability of many factors. Some of them are: raw material, land, water, labor, capital, power, transport, and market.



For ease of convenience, we can classify the location factors into two: geographical factors and non-geographical factors.

Geographical Factors

1. Raw material: Availability of natural resource that can be used as raw material.
2. Technology: To turn the resource into an asset with value.
3. Power: To utilize the technology.
4. Labour: Human resource in the area who can function as labor to run the processes.
5. Transport : Road/rail connectivity.
6. Storage and warehousing.
7. Marketing feasibility.
8. Characteristics of land and soil.
9. Climate.
10. Precipitation and water resources.
11. Vulnerability to natural resources.

Explanation:

- Raw materials are one of the important factors in an industrial location. The mere location of industries itself may be determined by the availability or location of the raw materials.
- Power – conventional (coal, mineral oil or hydro-electricity) or on- conventional in nature is a necessity for any industrial establishment.
- Availability of labor or skilled workforce is the success mantra for the growth of all industries.
- Availability of easy transportation always influences the location of the industry. So the junction points of waterways, roadways and railways become humming centers of industrial activity.
- The finished goods should reach the market at the end of the process of manufacturing. Thus nearness to the market is an add-on quality in the process of selecting a location for industry.
- Availability of water is another factor that influences the industrial location. Many industries are established near rivers, canals, and lakes, because of this reason. Iron and steel industry, textile industries and chemical industries require large quantities of water, for their proper functioning.
- The site that is selected for the establishment of an industry must be flat and well served by adequate transport facilities.
- The climate of the area selected for the industry is important, very harsh climate are not suitable for the successful industrial growth.

Non-geographical Factors

1. Capital investment.
2. Availability of loans.
3. Investment climate.
4. Government policies/regulations.
5. Influence of pressure groups.

Explanation:

- Capital or huge investment is needed for the establishment of industries.
- Government policies are another factor that influences industrial location. The government sets certain restriction in the allocation of land for industries in order to reduce regional disparities, to control excessive pollution and to avoid the excessive clustering of industries in big cities.
- Industrial inertia is the predisposition of industries or companies to avoid relocating facilities even in the face of changing economic circumstances that would otherwise induce them to leave. Often the costs associated with relocating fixed capital assets and labor far outweigh the costs of adapting to the changing conditions of an existing location.
- Efficient and enterprising organization and management are essential for running modern industry successfully.
- The location that has better banking facilities and Insurance are best suited for the establishment of industries.

It is rarely possible to find all these factors available at one place. Consequently, manufacturing activity tends to locate at the most appropriate place where all the factors of industrial location are either available or can be arranged at lower cost. In general, it should also be noted that both lower production cost and lower distribution cost are the two major factors while considering the location of an industry. Sometimes, the government provides incentives like subsidized power, lower transport cost, and other infrastructure so that industries may be located in backward areas.

Minerals: - Minerals are defined as solid, inorganic, naturally occurring substances with a definite chemical formula and general structure. Almost all chemical elements in the Earth's crust are associated with at least one mineral. Some minerals are radioactive (uranophane), while others are magnetic (magnetite).

Types of Minerals

1. Metallic Minerals

Metallic minerals exhibit luster in their appearance and consist of metals in their chemical composition. These minerals serve as a potential source of metal and can be extracted through mining. Examples of metallic minerals are Manganese, iron ore and bauxite are Metallic minerals and be divided into ferrous and non-ferrous metallic minerals.

Ferrous minerals are one that contains iron and nonferrous are one that does not contain iron.

2. Non metallic minerals

Non-metallic minerals are minerals which either show a non-metallic luster or shine in their appearance. Extractable metals are not present in their chemical composition. Limestone, gypsum, and mica are examples of non-metallic minerals.

Bauxite ore mostly exists in deeply weathered rocks. Volcanic rocks contain bauxite deposits in some regions.

Iron metal extracted from iron ore. It never exists in pure form and has to be extracted from iron ore by eliminating the impurities.

Gold is the oldest and most precious element to be known.

Manganese ore is a silvery brittle or grey-white metallic ore occurs in many forms and found worldwide.

The classifications of minerals are:

(1) Metallic minerals : we get metal from these minerals , ore of iron, copper, gold, silver, tin etc. are important example of metallic minerals can further be divided into ferrous and non-ferrous .

(2) ferrous minerals : these minerals which contain iron ore are known as ferrous minerals. iron ore, nickel, cobalt, are some important ferrous minerals.

(3) Non-ferrous minerals: Minerals containing metals other than iron are known as non-ferrous minerals. gold, silver etc. are called Non-ferrous minerals.

(4) Precious minerals: The minerals which have very high economic value are known as precious minerals for example gold, silver etc.

(5) Non-Metallic minerals: These are Minerals which do not contain metals. coal, mica etc. are some important non-metallic minerals . there is deficiency of copper, lead, zinc and gold.

(6) Energy minerals: The minerals which provided energy or power are known as energy minerals. coal, natural gas are the most important energy minerals.

Industrial region of Asia

In Asia, China, Japan and India have done considerable progress in industrial development. Hong Kong, Korea and Taiwan have become major exporters of textile and other goods.

The South-East Asian Region, though traditionally agricultural in outlook, is also developing industries. Singapore is the most industrialised of the South-East Asian countries. Oil is the major resource of Middle East; therefore, oil refining and petrochemical industry have become important in the region. Iran has developed a wide range of industries.

1. China:

Industrial development in China began only after the beginning of Communist rule in 1949, and now China is not only an industrial power of Asia but also of the world. There has been a complete transformation of the industrial system during the last 60 years.

Under the new system and policy, China is developing its industrial system in a planned manner. Rapid development has made China a leading producer of iron and steel, textiles,

and cheap consumer goods such as toys, household goods and light metal goods. In China, following industrial regions have been identified:

a) Manchurian Industrial Region:

The most important industrial area of China is in Manchuria with centres at Anshan (steel industry), Penki (steel industry), Fushun (coal, lubricating oil, and chemicals), Mukden or Shenyang (machinery and tools) and Dairen (mills and shipyards) – all of them near coal and iron ore deposits. Anshan, Fushun and Shenyang form a triangle, within which are numerous large plants.

Here, China developed the largest coal mine, by far the largest blast furnaces and almost the only important steel mills, major factories for railway equipment, cement plants, chemical works, military arsenals and factories for the processing of agricultural products. This was principally an area of heavy industry.

b) Tientsin and Beijing Region:

A second industrial area has been developed at the northern end of the North China Plain, near the Kailan coal reserves, with Tientsin, Peking or Beijing and Tangshan as its main centres. This industrial complex centred on Tientsin and extending from Chinwang to southward along the coast past Kaiping, Tangshan and Tangshu, and thence westward beyond Beijing. The presence of coal-fields in Shansi and Hopei has contributed to the rise of the metallurgical and engineering industries here.

Beijing, Tientsin and Tangshan produce coal, steel and machinery making this northern region the industrial centre for the whole of the North China Plain. The industrial economy of the area has much in common with that of Manchuria.

c) Lower Yangtze Industrial Region:

This is China's oldest industrial region because the area has been open to foreign influence since the middle of 19th century. Shanghai is the main industrial town and port of this

industrial region. This is an area for the production of consumer goods such as cotton, silk, textile, food, leather, radio, television sets, utensils, leather, etc. Shanghai's population has now increased rapidly.

The needs of the city and its productive hinterland led to factories being set up, partly supplied from overseas; these produced foodstuffs and included flour and oil mills. Paper and tobacco factories were also established, and later the first machine repair shops, from which the present-day iron steel and machines industry has developed.

The cotton textile mills of Shanghai industrial region are some of the largest in Asia. Shanghai and the lower Yangtze Delta area clearly lead in total industrial output. There are also shipyards, oil refineries, flour mills, steel plants, metal works and a great variety of light industrial products. The other industrial cities of this region are Hang Chow, Soochow, Nanking and Ningpo.

d) The Middle Yangtze Industrial Region:

The industrial centre furthest inland was the one on the middle Yangtze plain around the former tripartite town of Hankow-Hanyang-Wuhan, with the river navigable for large ocean going vessels up to that point. The iron and steel works here are based on Peninsiang coal and Tayeh iron ore. Shipbuilding, metallurgical and heavy industries, railway equipment and chemicals are important items of production.

Yangtze forms a magnificent waterway, being navigable for large ocean vessels to Hankow, and for smaller sea vessels to Kiang – nearly 1,600 km from its mouth. The next important town is Hanyang. Hanyang lies not far from coal and iron ore deposits and was in fact the cradle of China's heavy industry. Engineering and textile works were later set up, together with foodstuffs factories.

Sichuan (Szechwan) Industrial Region: Sichuan (Szechwan) province above the Chang Jian (Yangtze Kiang) gorge has many important industries around Chongqing (Chungking) and Chengdu (Chengt'u).

The rich deposits of coal, iron, ferro-alloys and abundant agricultural raw materials have all encouraged industrial development. Iron and steel, textiles, paper and pulp, machinery, cement, and chemicals are made here.

e) Si Kiang Delta Region:

At the mouth of the Xi Jiang (Si Kiang) the port of Canton is the main industrial centre. Canton lacks local raw materials and once was known largely for commerce. Modern industries are centred on silk production; there are silk mills, jute and cotton goods are manufactured, rubber is processed, and there are food-canning and match factories. Iron works and machine factories occupy sites near the docks.

The iron ore comes from Hainan Island. There are also mechanised porcelain factories. But, in spite of Cantons many industries; it is firstly a trading centre for the exchange of goods between the interior and countries overseas. Food processing factories have recently been established at Swatow. Next along the coast come the towns adjacent to Canton-Fatshan which produces textiles and household goods, Shuntak (for silk and sugar), Tungkuan (sugar and food) industries.

In China, many cities are considered to be the industrial cities. Some towns such as Anning, Kiuchuan (iron and steel); Yumen and Hangzhou or Hangchow (oil refining); Lanzhou or Lanchow (chemicals, textiles, mining equipment) and Kunming (chemicals, machinery, textiles) have industrial development.

2. Japan:

Japan is the highly industrialised country of Asia. Despite its shortage in industrial raw materials and solid fuel, it has been able to develop industries at a very fast rate.

The reasons of rapid industrial growth in Japan are:

- (i) Availability of hydroelectric power.
- (ii) Coastal location and large ports which helps in import of raw material and also in export.

(iii) Proximity to mainland of Asia providing a ready market. Now, Japan has a worldwide market for its products.

(iv) Country's large population provides a ready source of labour.

(v) Technological development.

(vi) Government encouragement, etc.

Industrial Regions of Japan

a) Tokyo-Yokohama Region:

The greatest industrial region of Japan is the Kanto plain and is formed by the conurbation of three chief cities, Tokyo, Kawasaki and Yokohama. Tokyo the capital of the country, is favourably situated in the middle of a small fertile plain known as Kanto plain, and carries on many artistic industries.

Tokyo is noted for electrical engineering such as transistors, radio television sets, washing machines, refrigerators and computers. Today, it ranks high in blast furnaces, steel mills, machines and tools, chemicals, refineries, shipbuilding, airplane, factories of consumer goods, electrical machinery, textile and canning industries, etc.

Yokohama is a port city where manufacturing has been overshadowed by trade. One reason for the slower development of industry has been restricted area of level land suitable for the expansion of factory sites. Yokohama has precision engineering, shipbuilding, oil refining, petrochemicals and port industries.

The third industrial city is Kawasaki. Its Heavy Industries Ltd., Japan's top manufacturer of industrial robots, is planning to bolster production and step up sales, including those in Europe and the USA to meet the growing demand.

Though about 90 per cent of robots it makes at present are arc welders for sale to car manufacturers. It will be placing heavier emphasis from now on to the output of robots for other purposes, such as spray painting and assembling.

b) Osaka, Kobe and Kyoto Region:

In the Hanshin or Kinki region are three of the Japan's six great cities – Osaka, Kobe and Kyoto, the first two of which are also among the three great deepwater ports. The manufacturing structure of the Hanshin region is one of great diversity.

Until recently at least, textiles lead all other industries. The cotton industry is carried on chiefly at Osaka and other towns in the fertile plain that borders the northern shore of the inland sea.

Osaka is the greatest cotton-textile town and is generally known as the Manchester of Japan. Here the naturally dense population makes labour cheap, and affords a good market. As Osaka has just one poor harbour, it is largely served by the port of Kobe.

The Osaka-Kobe industrial region is as smoky, noisy and unattractive in appearance as are most regions of heavy industry. Kobe concentrates on shipbuilding, oil refining, and petrochemical industries including synthetic textile and rubber manufacture.

c) The Nagoya Industrial Region:

The third industrial region of Japan is Nagoya. Nagoya has textile mills that process local silk, imported cotton and also synthetic fibres; engineering industries, including all kinds of machinery automobiles, locomotives and aircraft.

Textile, including silk reeling, cotton spinning, cotton weaving and wool weaving lead all other industries. Much of Nagoya's woollen industry is relatively new and Australian wool is chiefly used. Nagoya is one of the country's foremost aircraft manufacturing centres.

d) Northern Kyushu Region:

This industrial region is located close to the south-western limit of the general manufacturing belt in northern Kyushu. It ranks 4th among the manufacturing concentrations, being credited with nearly 90 per cent of the nation's industrial output.

Chikuho coalfield is situated in close proximity of this heavy industrial centre. Textiles are not an important element of the industrial structure of this region; of first importance are the heavy industries, especially iron and steel manufacturing.

Yumata, Kokura, Moji, Fukuoka are the industrial centre of this region. Outside the above four major industrial regions there are several scattered industrial towns. Iron and steel is made at Muroran; oil refining is important at Akita and Niihata; engineering at Hiroshima; shipbuilding at Kure; textiles at Okayama. Hakodate and Sapporo in Hokkaido also have some industrial development.

3. India:

Since gaining independence in 1947, India has gradually emerged as an industrialised nation, in spite of the fact that agriculture is still the base of the Indian economy. The industrial development has occurred through government policies adopted during various plan periods. Both private and public sector industries have been developed, with the result India now is considered as an industrial nation of Asia after China and Japan.

The distribution pattern of Indian industries is varied. Among the states, Maharashtra contributes the largest amount of industrial products, followed by Gujarat, Tamil Nadu, West Bengal, Uttar Pradesh, Jharkhand, Bihar, Karnataka, etc. The following industrial regions are prominent in India:

a) The Kolkata Region:

The major industries located in this region are jute mills, cotton textile, chemicals, drugs, engineering, machine tool, automobiles, tobacco, paper, etc. The notable industrial centre are

Howrah, Liluah, Bailey, Konnagar, Chandannagar, Birlapur, Dum Dum, Belghoria, Sodepur, Titagarh, Barrackpur, Shyamnagar, Naithati, etc.

b) Mumbai-Pune Region:

This region stretches from Mumbai metropolis to Pune in the south. Major industrial centres are Andheri, Belapur, Thane, Kalyan, Pimpri and Pune. This is the biggest industrial agglomeration in India. The major manufacturing items produced here are: textile, drugs and pharmaceuticals, chemicals, petrochemicals, paper, leather, engineering, goods, fertiliser and precision instruments.

c) Ahmedabad-Vadodara Region:

This region is having cotton textile, petrochemical, chemical, fertiliser and engineering industry. The main industrial centres of this region are: Ahmedabad, Vadodara, Varuch, Surat, Kalol, etc.

d) Coimbatore-Bengaluru Region:

The industries developed in this region are cotton and silk textile, sugar chemical along with several public sector units. Coimbatore, Bengaluru, Madurai, Tiruchirapalli, Mettur, Sivakasi, Mysore, Maducottai, etc., are the major industrial centres.

e) Chota Nagpur Plateau Region:

This area is very rich in mineral resources like iron ore, copper, mica, bauxite, manganese, dolomite, limestone, etc. The region has several industries like steel plants, heavy engineering, machine tools, heavy electricals, locomotive, fertilisers, cement, paper, etc. The major industrial centres of this region are Ranchi, Dhanbad, Jamshedpur, Sindri, Hazaribagh, Chaibasa, Daltonganj, Japla, etc.

f) Delhi Capital Region:

The capital region of Delhi is now emerging as an important industrial region. Adjacent towns of Delhi like, Faridabad, Ghaziabad, Gurgaon, Noida, Mathura, Saharanpur, etc., are now developing as industrial centres. The major industries of this region are textile, engineering, leather, drugs and pharmaceuticals, petroleum refinery, consumer products, etc.

Apart from the above mentioned major industrial regions of India, several other regions/cities have also developed in the country. Among these Kanpur, Lucknow, Meerut, Jalandhar, Ludhiana, Patiala, Jaipur, Bilaspur, Nagpur, Bhopal, Bhubaneswar, Hyderabad, Thiruvananthapuram, Chennai, Alleppey, Quilon, etc., are important.

Other Asian Industrial Regions:

The four Asian regions — Hong Kong, Taiwan, South Korea and Singapore are notable for their industrial production. Hong Kong has developed both heavy and light industries. Most of the industries are export-oriented.

Hong Kong is famous for toys, plastic goods, domestic appliances, radios, sports goods, handbags and footwear, watches and clocks, photographic goods, jewellery and printed matter.

Now, heavier industries like textiles and electrical goods have also been developed. Taiwan is located about 200 km away from the south-east coast of China. Taiwan's industrial development includes textiles, electronic goods, plastics, toys, small tools, etc., along with iron and steel industry, aluminium and chemical industries.

South Korea is also considered as an important producer of industrial products not only for its own consumption but for export also. With the help from USA, Japan and some European countries, South Korea now has developed a strong industrial base. South Korea is having a large supply of labour which is cheap and skilled.

Today, South Korea is having large steel plants, automobiles, aircraft, and shipbuilding industry and also produces consumer electronics, electrical goods and other types of machines. In recent years emphasis has also been given on machinery manufacture, to produce machines not only for export but to service the increasing local demands.

Singapore with a three million populations and expansion of just 600 sq km is specialised in electronic technology, high-tech manufacturing and financial and research services.

Malaysia: Another Asian country having an industrial base of moderate type is the Malaysia. The main industrial regions of Malaysia are in the Kelaung valley between Kuala Lumpur and the sea around.

Geographical Factors Influencing Agriculture

Some of the geographical factors influencing agriculture are **1. Natural Factors 2. Economic Factors 3. Social Factors 4. Political Factors**

Growth and development of agriculture is always directed and determined by physical, economic, social and political factors.

In fact, geographical factors play a vital role in agricultural development, in spite of the technological and scientific development.

The important factors influencing agriculture are as follows:

1. Natural Factors:

The natural factors that affect agriculture most are:

(a) climate – mainly temper-ature and precipitation,

(b) Soil, and

(c) Topography. Most of these factors can be modified to some extent by man's effort. For example, man carries water to land where there is little rain, or supplies fertilisers to soil that are deficient in plant food. If necessary, he will adapt his agriculture to conditions that he cannot overcome.

Climate:

All forms of agriculture are controlled largely by temperature. Areas deficient in heat are deficient in agriculture. For that is one element of climate that man has not been able to create at economic costs on a large scale. Temperature determines the growth of vegetation through determining the length of the vegetative period.

Successful agriculture, therefore, requires a fairly long summer. In higher latitudes, however, the shortness of summer is compensated by the longer duration of the day. The total amount of heat received is enough for ripening of crops.

In lower latitudes where the winters are never too cold to arrest the growth of vegetation, practically the whole year is the growing period, and the agricultural operations are timed according to the supply of rainfall.

The moisture requirements of the plant vary according to the heat received. In the higher latitudes, where the summers are not very hot or where the winds are not dry, the amount of moisture given out by plant transpiration is less than in the lower latitudes where the heat received is great and the capacity of the winds to suck up moisture considerable.

The plants, therefore, require less moisture in the temperate regions than in the tropical regions. Thus, a certain amount of precipitation may be sufficient for flourishing agriculture in the temperate regions, while the same may not suffice for meager agriculture in the tropical regions.

Soil:

A rich soil in plant food is the chief requirement of successful agriculture. It is essential as a support for plants, and as the main medium whereby water and all plant foods, except carbon dioxide, are brought to the roots of the plants where they are absorbed. Soils that are poor, either chemically or in texture, have low productivity, both in amount and variety.

Topography:

Topography affects agriculture as it relates to soil erosion, difficulty of tillage and poor transportation facilities. Mechanization of agriculture depends entirely on the topography of land. On rough, hilly lands, the use of agricultural machinery is impossible.

In areas where the pressure on soil is great, even the slopes of mountains are terraced into small farms to provide agricultural land. In China, farm terraces may be seen clinging to hillsides to a height of several thousand feet. It is known that in extreme cases agriculture may succeed in conquering slopes of as much as 45 degrees.

2. Economic Factors:**Market:**

Relation to market generally determines the character of farming, for the cost of transport to the market will generally affect the competitive power of the agricultural output. Places away from the market will generally grow such things which can afford the cost of transport to the market. Places near large centers of population generally develop market gardening and produce easily perishable goods which can be transported to the market for short distances without much damage.

Transportation Facilities:

In commercial type of farming transportation facilities play a significant role. Indeed they determine its genus. In regions far flung from markets and ill-equipped with transportation

facilities commercial farming is a remote possibility. The term 'truck farming' bears the unmistakable influence of transportation facilities on agriculture.

The economic history of the world records the changes in agriculture patterns as induced by transportation facilities. Improvements in the realm of transportation and communication have rendered possible regional specialisation and thus made feasible fuller utilisation of the peculiar features of the specific soils and climates.

Labour:

Labour supply determines the character of agriculture. Intensive agriculture is essentially labour-intensive and exemplifies the human pressure on land.

Agriculture requires skilled labour that can appreciate the subtle relations of seasons and soils with crops and adopt the requisite cultural practices. Again, it is the supply of agricultural labour that determines the timely sowing, harvesting and other cultural practices and ensures good returns.

Capital:

The modern mechanised farming has become capital-intensive to a large extent. The occidental farmer has to invest large amount of capital in agriculture because he has to buy agricultural machinery and chemical fertilizers.

3. Social Factors:

Social factors affect farming in a number of ways. The type of farming practiced, be it shifting cultivation, subsistence farming, extensive cereal cultivation or mixed farming, etc., is always related to regional social structure. Social factors can also affect the type of crops that are grown.

These factors are more effective in tribal cultures. Another way in which social factors can affect agriculture is in the ownership and inheritance of land. In many parts of the world the land of a father is divided between his children. This leads to the breaking up of already small farms into smaller units which are often uneconomic to farm, as in case of India.

4. Political Factors:

Political factors also play a vital role in agricultural development. The political system, i.e., capitalistic, communist or socialistic system determines the pattern of agriculture. For example in China, agriculture is fully controlled by government; similar was the case of former USSR. On the other hand, in USA, Canada and in most of the other countries of the world, agriculture is a private concern.

The government policies regarding land, irrigation, marketing and trade, etc., have a direct impact on agriculture. Similarly, subsidies, loan policy, purchase policies, agricultural marketing and international trade and tax policy of the government also have a direct impact on agricultural production and its development.