

# CALIFORNIA:

## 1. MAIN RELIEF, DRAINAGE AND TOWNS.

**(Draw a sketch map showing the main regions- The Coastal Ranges, the Central Valley and the Rocky Mountains (Sierra Nevada).**

### **SOUTHERN CALIFORNIA: The Development of a Semi-Arid Area.**

California also known as a 'Gold State' is one of the states in USA. It is located in the south western part of U.S.A and is bordered by the Pacific Ocean in the west, Oregon State in the north, Nevada to the east and Mexico in the south. San Francisco is the largest city in the state while other cities such as Los Angeles and San Diego are very important cities with valid functions. California is unique in that, it has a variety of relief features, climate and natural vegetation.

#### **RELIEF.**

The relief of California can be divided into three broad divisions;

- i. The Coastal Ranges**
- ii. Sierra Nevada Mountains(part of the western Cordilleras)**
- iii. The Central Valley.**

#### **i. Coastal Ranges**

These rise from the sea level towards the east. They consist of folded mountains. They run parallel to the Pacific coast. They are lower than the Sierra Nevada Mts.

#### **ii. Sierra Nevada Mountains (Rocky Mountains).**

These mountains run from North to South in the East. They are also folded Mts and merge with the Coastal Ranges just south of the town of Bakersfield.

#### **iv. The Central Valley**

This lies between the Coastal Ranges and Sierra Nevada Mountains. The valley floor is generally flat. It is covered with thick deposits of gravel and silt which was washed down from Sierra Nevada Mountains and deposited on the flat floor. The Central Valley stretches from northern California to the south. It is long and narrow in width. It is the most productive region of California.

**(Draw a cross-section showing the Relief of California from east to west)**

## CLIMATE

The Central Valley experiences a Mediterranean type of climate with mild, wet winters and hot, dry summers. Precipitation (rainfall) varies from region to region due to differences in altitude and location. The type of rainfall received in the highlands is orographic (relief rainfall). In some areas, rainfall is low due to the rain shadow effect.

The climatic statistics of the stations below show that rainfall decreases as we move southwards.

### Climatic statistics of selected stations in California.

#### 1. SAN DIEGO (South)

Month	J	F	M	A	M	J	J	A	S	O	N	D
Temp °C	13	13	14	15	16	18	19	20	19	17	15	13
Rainfall(mm)	46	49	38	15	7	3	3	3	3	10	23	45

#### 2. SAN FRANCISCO (Central)

Month	J	F	M	A	M	J	J	A	S	O	N	D
Temp oC	9	10	12	13	13	14	14	15	16	15	14	10
Rainfall(mm)	124	94	78	28	12	6	0	0	8	12	62	114

#### 3. EUREKA (North)

Month	J	F	M	A	M	J	J	A	S	O	N	D
Temp oC	6	8	10	10	12	13	13	14	13	13	12	10
Rainfall(mm)	170	140	134	68	56	16	6	6	15	82	118	170

## **DRAINAGE**

Mainland California is drained by two large rivers, R San Joaquin in the south and R. Sacramento in the north. They both rise from the Sierra Nevada Mountains to the east and drain into the Pacific to the west. These rivers and their tributaries are very important to California because they provide water for irrigation and Hydro Electric Power.

On the western side, California is bordered by the Pacific Ocean. The Pacific Ocean is very important because it affects the climate but is also a major fishing ground and provides a major sea route to the outside world.

## **THE WATER TRANSFER SCHEME IN CALIFORNIA.**

Most of the people in California live in the south especially in the Central Valley and the coastal towns. However, the southern region gets very little rainfall and there is perpetual lack of water. On the other hand, the north gets more rainfall but has a very small population. In order to provide more water for the people in the south, a plan was started to transfer water from the Sacramento valley in the north to the Joaquin valley in the south using a system of man-made canals. The first irrigation project in California was undertaken by individual farmers which later developed into community projects, Later in 1930, the Central Government started another water project called the Central Valley Water Transfer Project.

### **Rainfall in California.**

In California, rain falls during winter when no farming is going on. Thus the climate is cool and wet unlike in summer. During summer season, no rain is received and yet it is the most ideal season for crop growing. Rain is unevenly distributed between the north and southern parts of the state.

**(Draw a sketch map showing rainfall distribution in California)**

### **The Central Valley Water Transfer Scheme (Project).**

This project provides water for irrigation to about 5,000,000 hectares of land. About 2/3 of the irrigable land is located in the south of the delta and yet 2/3 of the water for irrigation comes from the Sacramento valley in the north. This project was based on two big water conserving dams (**Shasta dam and Friant dam**) and two major canals (**Delta Mendota Canal and Delta Cross Canal**). Many pumping stations were established to ensure adequate supply of water to the irrigable land. Additionally to the two big dams, smaller dams were constructed to help in keeping the water.

The **Shasta dam** was particularly built to store water in the upper Sacramento basin. This water was later pumped from the Shasta Hydro Electric power station via the Delta Mendota canal to

irrigate crops in the upper San Joaquin basin. The same water is used to irrigate fruits and vegetables in the Central Valley.

**In Los Angeles and San Diego regions**, water is limited and rain comes in winter when agricultural activities cannot take place. To solve the demand of the farmers, industrialists and domestic users at home, the state government has decided to transfer water from the Sacramento delta using the **California Aqueduct**. Water is also being pumped from the Owens' Valley Reservoir and the lower Colorado River using the **Colorado Aqueduct**.

**(Draw a sketch map of the Water Transfer Scheme in California.**

### **Problems of transferring water in California**

- **High costs of transferring water** for industrial and domestic use. The costs are shared between farmers and the State government.
- **High demand for the water.** The increase in population and economic activities has resulted into a high demand for water supplies. Water is required for agriculture, manufacturing industries and for domestic purposes.
- **Problem of salinity.** Water transferred by canals is too salty due to high evaporation rates. Salty water is not suitable for the growth of some crops.
- **Silting of the reservoirs.** The water that flows into the man-made lakes deposits a lot of silt soil. The continuous deposition of fine soil has filled the reservoirs. The canals have also been silted.
- **High costs are involved in flashing out salty water from reservoirs and canals.** This salty water is replaced by fresh water.
- **Increased flooding risks.** Water transferred from the Sacramento Delta has led to flooding of some lowlands in Southern California. These floods have resulted in disruption of settlements and economic activities.
- **Breeding grounds for dangerous vectors.** This has resulted from floods. They include mosquitoes which spread germs for malaria, snails, and other water borne diseases.
- The project has **destroyed the breeding grounds for the salmon fish** hence disrupting its quantity.

## AGRICULTURE.

### Characteristics of Agriculture in California.

- **Farming in California involves the use of irrigation** with water pumped from the rivers Sacramento and San Joaquin through a system of reservoirs and canals.
- **Family operated farms.** Most of the farms are owned by families. Members of the family have the responsibility of managing this family. Farms however, when the farms become too large, supervisors are hired to manage them.
- **High investment of capital and technology.** All farm activities are mechanized and this has led to high productivity per worker. The high cost of irrigation has forced the farmers to invest in a lot of capital.
- **Large farms (large scale firms).** The farms are too large ranging from family farms to state farms. **N.B** they use a lot of technology to produce crops.
- **Specialization on farms.** Farms have specialized in the production of particular crops e.g. Central Valley has specialized in fruit growing, Los Angeles in viti-culture (growing grapes), Imperial Valley in cattle for beef.
- **The farms are situated near towns so it is easy to sell the products in the market.**
- **The products grown mature very fast.**

California is the most prosperous agricultural state in the USA. It is famous for irrigation farming in the following regions:

- i. The Central Valley
- ii. Around the city of Los Angeles
- iii. The Imperial Valley.
- iv. The Coachella Valley and.
- v. The Salton Trough

### **Types of agriculture and crops grown on the Central Valley.**

#### **1. Fruits growing.**

This is one of the most successful agricultural activities in the Central Valley. The large fruit farms are known as **Fruit Ranchers**. Major fruits include;

Lemons, grapes, oranges, apples, plums, and vegetables include tomatoes, carrots, onions, cabbages.

The growing of vegetables and fruits is known as **Market Gardening**.

2. **Cereals** (Rice, wheat and maize).

3. **Fibers: Cotton.**

**Fodder Crops:** For feeding livestock e.g. Hay, alfalfa.

### **FARMING IN THE CENTRAL VALLEY**

The farm holdings are very large and they are referred to as **fruit ranches**. The Central Valley is important for fruit growing which are sold in the nearby centers.

The success of fruit growing in the Central Valley is due to the following factors;

- Availability of water for irrigation provided by the rivers Sacramento and San Joaquin.
- Fertile alluvial soils.
- Reliable rainfall in winter season.
- Ready market in the nearby towns.
- Availability of skilled labour.
- Presence of efficient transport (fast trains and good roads).
- Modern technology and machines used in production.

### **Farming Activities in the Year in the Central Valley.**

#### **Winter season: January, February and March.**

**Spraying and pruning** take place. Pruning is carried out so that the trees do not grow too tall which makes harvesting difficult. It is also used to control the spread of diseases to other parts of the tree. In most cases, pruning is done in the months of February and March.

After pruning and spraying, **disking** takes place. Disking is the deep ploughing which is followed by the planting of cover crops. The cover crops usually grown are grains and peas. The planting of cover crops is done so as to increase the nitrogen in the soil.

Fertilizers are applied between Feb and March. This is the same time for spring rains. The rains help to carry the fertilizers down into the soil.

## **April to September.**

Irrigation of peaches begins and between April and September, about five irrigations may be applied.

**In May**, more spraying is carried out.

**Peach picking starts in July.** Some of it is done by machines but in most cases, manual labor is used. Where manual labor is used, the pickers climb the ladders and pick the peaches putting them in bags on their backs. The bags are then emptied into boxes and taken by the lorries to the grading shades. They are then inspected, weighed, and graded as quickly as possible since they are very perishable. Thereafter, they are put into refrigeration trucks ready for sale.

Fruits grown include; apples, peaches, pears, berries, lemon, oranges, pineapples, grapes etc. It is important to note that most fruit ranchers are self sufficient. That means that after harvesting the entire processing, canning and marketing takes place on the ranch.

## **Problems faced by Fruit Ranchers.**

- High cost of water for irrigation and use in the factories.
- Shortage of water especially during the dry season in summer
- Pests and diseases.
- Price fluctuation locally and on the world market.
- Competition from other fruit growers in California and outside.
- High evaporation rates during the dry summer season.
- Mono culture i.e. growing the same crop on the same farm all the time.
- Silting of the canals through constant deposition of soils carried by water.

## **Other Irrigated Areas**

### **1. Imperial Valley.**

It is located in the desert of Southern California. About 320,000 hectares of land covered have been turned into agricultural land. Rainfall in this area is low and is below 80mm per annum. The little rainfall comes between November and March and cannot support plant growth. Water for irrigation is therefore provided by the river Colorado. However, most of the water from this river is subjected to high rates of evaporation during the dry summer season.

The Imperial Valley has fertile soils that support the growth of fruits and vegetables (Market Gardening). Lettuce dominates other crops which include carrots, cabbages and tomatoes.

### **Coachella Valley.**

It is situated in the California desert. Rainfall in this area is always low and unreliable and therefore, water has to be provided for irrigation. Water is got from R. Colorado via the All-American Canal. The region covers an area of about 21,000 hectares. The crops include dates, vegetables and fruits.

### **2. Salton Trough (Valley).**

It is the largest irrigation area in California surrounded by the Salton Sea. It is 40 km long and 32 km wide. The water in the Salton Sea is not used for agriculture because it is highly saline. Instead, fresh water is got from R. Colorado. A variety of fruits and vegetables are produced.

## **MARKET GARDENING IN CALIFORNIA.**

Market Gardening refers to the growing of fruits and vegetables for sale. The fruits include lemons, grapes, oranges, apples, plums while the vegetables include; tomatoes, carrots, onions, cabbages.

### **Characteristics of Market Gardening.**

- Involves growing of fruits and vegetables for sale.
- The crops are intensively cultivated where a small piece of land is cultivated with high productivity.
- A lot of capital is required.
- Fertilizers and manure are applied to improve soil fertility.
- Irrigation is practiced.
- Products are sold while still fresh.

### **Conditions which have favoured Market Gardening in California.**

- Presence of fertile alluvial soils in the Central Valley.
- The landscape is relatively flat thus is suitable for mechanization and irrigation.
- Availability of water for irrigation from R. Sacramento and R. San Joaquin.
- Availability of capital to purchase fertilizers, machinery, chemicals and other inputs.

- Availability of skilled man-power.
- Availability of a large market not only in USA but also in Europe.
- Well developed transport system by road, railway, water and by air.
- Positive Government policy which supports the activity.

### **Importance of Market Gardening.**

- Source of food for the people.
- Source of foreign exchange through exporting crop.
- Source of raw materials for agro-based industries.
- Provides employment for the people.
- Provides market for industrial products.
- Encourages research and development of high yielding crop varieties.
- Promotes international relationships between USA and other countries especially those that import produce from USA.
- The farmers' standards of living have greatly improved.

### **Problems facing Market Gardening**

- Pests and diseases which affect the crops.
- Soil exhaustion due to the growing of more or less the same crop year after year.
- Frost / low temperatures which cause freezing that affect not only the crops but also the workers.
- High cost of production involved.
- The commodities are highly perishable.
- Fluctuation of market prices.
- Salination of the soils due to use of salty water for irrigation.
- Competition for market with other producing countries.

## **Solutions**

- Spraying with chemicals to overcome the problem of pests and diseases.
- Use of fertilizers and manure to restore the fertility.
- Mechanization to solve the problem of shortage of labor.
- Market research to solve the problem of competition.
- Development of better preservation methods such as refrigeration.

## **Importance of Agriculture in California**

- Source of foreign exchange
- Source of employment
- Source of income to farmers hence improved standards of living
- Agriculture provides market for industrial products, fertilizers etc.
- Urbanization i.e. growth of towns that serve as fruit collecting centers.
- Development of infrastructure e.g. air transport, road transport.
- Diversification of the economy
- Improvement of international relationships.

## **INDUSTRIALISATION IN CALIFORNIA**

There are two main industrial (centers) in California;

1. **San Francisco.** The industries include electronics, food processing, ship building, oil refineries, grain milling, still products and air craft.
2. **Los Angeles.** The main industries include; the Film industry in Hollywood, food processing, air craft and refineries.
3. **San Diego.** Industries include; food processing, automobile, elections, ship building etc.

## **LOCATION OF MAJOR INDUSTRIES AND MINING CENTERS IN CALIFORNIA.**

### **Factors that have favoured Industrialization in California.**

- Availability of raw materials from the agricultural sector especially the food processing industry eg fruits and vegetables.
- Availability of power for example HEP produced at dams like Shasta dam, Imperial dam and also oil from Bakersfield.
- Availability of large market for the commodities produced. This is available in USA, Europe, and Asia.
- Well developed transport routes by road, rail, water and air.
- Availability of skilled labor force.
- High levels of technology.
- Presence of water used in the industries.
- Availability of capital for investment.
- A variety of beautiful scenery, mountains, glaciers, forests, all conducive for the film industry.

### **Problems that have resulted from the development of industries in California.**

- Pollution of the environment by smoke from the oil refineries.
- Inadequate water supply.
- Traffic Congestion.
- Overcrowding.
- High cost of living
- Displacement of people
- Has led to weakness of the agricultural sector since many people give opt to abandon agriculture..

### **Importance of Industrial Sector.**

- Source of foreign exchange.
- Source of government revenue through taxes.
- Generation of employment.
- Have improved standards of living because of the incomes earned
- Provide market for the raw materials.
- Have encouraged infrastructural development e.g. roads, railway, canals etc.
- Industries have promoted international relationships.
- Industries have stimulated growth of ports and cities e.g. Los Angeles, San Diego, San Francisco.

### **THE FILM INDUSTRY**

The growth and development of the film industry has been favoured by;

Suitable climate (warm and sunny climate) which is good for photography. Additionally, Hollywood is blessed with very many physical features like hills, mountains covered with snow, valleys. The area also has dense coniferous trees.

The high amounts of rainfall also resulted into the creation of beautiful sceneries.

### **Importance of the Film Industry in California**

- Provision of employment.
- Tourist attraction potential hence foreign exchange.
- Source of government revenue.
- Creation of good international relationships.
- Improves standards of living for actors and actresses.
- Diversification of the economy.



