

IMPORTANT CHAPTERS FROM SOCIAL SCIENCE AND SCIENCE (FROM NCERT CLASS 9TH)

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NCERT-CLASS-IX
SOCIAL SCIENCE-CONTEMPORART INDIA
CHAPTER-5

NATURAL VEGETATION AND WILDLIFE

- Refers to a plant community which has grown naturally without human aid and has been left undisturbed by humans for a long time termed as a virgin vegetation.
- Cultivated crops and fruits, orchards form part of vegetation but not natural vegetation.
- The virgin vegetation, which are purely Indian are known as endemic or indigenous species but those which have come from outside India are termed as exotic plants.
- The term flora is used to denote plants of a particular region or period.
- The species of animals are referred to as fauna.
- The sandy soils of the desert support cactus and thorny bushes while wet, marshy, deltaic soils support mangroves and deltaic vegetation.

Why the southern slopes in Himalayan region covered with thick vegetation are cover as compared to northern slopes of the same hills?

- Answer-The growth of vegetation depends upon the amount of sunlight and rainfall received. The southern slopes of the Himalaya receives more rain due to south west monsoon winds which travel west along the southern slops. The northern slopes do not receive any such rainfall.
- All the plants and animals in an area are interdependent and interrelated to each other in their physical environment forming an ecosystem.

TYPES OF VEGETATION

The following major types of vegetation may be identified in our country

- (i) Tropical Ever green Forests
- (ii) Tropical Deciduous Forests
- (iii) Tropical Thorn Forests and Scrubs
- (iv) Montane Forests
- (v) Mangrove Forests

Tropical Evergreen Forests

- restricted to heavy rainfall
- Best in areas having more than 200 cm of rainfall with a short dry season.
- Trees reach great heights up to 60 metres or even above.
- Region is warm and wet throughout the year, it has a luxuriant vegetation of all kinds – trees, shrubs, and creepers giving it a multilayered structure.
- No definite time for trees to shed their leaves.
- Appear green all the year round. Some of the commercially important trees of this forest are ebony, mahogany, rosewood, rubber and cinchona.
- Common animals found in these forests are elephants, monkey, lemur and deer.
- The one horned rhinoceros are found in the jungles of Assam and West Bengal.
- Besides these animals plenty of birds, bats, sloth, scorpions and snails are also found in these jungles.

Tropical Deciduous Forests

- Most widespread forests of India.

- Also called the monsoon forests and spread over the region receiving rainfall between 200 cm and 70 cm.
- Trees of this forest-type shed their leaves for about six to eight weeks in dry summer.
- On the basis of the availability of water, these forests are further divided into moist and dry deciduous.
- The former is found in areas receiving rainfall between 200 and 100 cm.
- Exist mostly in the eastern part of the country – northeastern states, along the foothills of the Himalayas, Jharkhand, West Orissa and Chhattisgarh, and on the eastern slopes of the Western Ghats.
- Teak is the most dominant species of this forest. Bamboos, sal, shisham, sandalwood, khair, kusum, arjun, mulberry are other commercially important species.
- The dry deciduous forests are found in areas having rainfall between 100 cm and 70cm.
- These forests are found in the rainier parts of the peninsular plateau and the plains of Bihar and Uttar Pradesh.
- There are open stretches in which Teak, Sal, Peepal, and Neemgrow.
- A large part of this region has been cleared for cultivation and some parts are used for grazing.
- common animals found are lion, tiger, pig, deer and elephant.
- variety of birds, lizards, snakes, and tortoises are also found here.

The Thorn Forests and Scrubs

- In regions with less than 70 cm of rainfall, the natural vegetation consists of thorny trees and bushes.
- found in the north-western part of the country including semi-arid areas of Gujarat, Rajasthan, Madhya Pradesh, Chhattisgarh, Uttar Pradesh and Haryana. Acacias, palms, euphorbias and cacti are the main plant species.
- Trees are scattered and have long roots penetrating deep into the soil in order to get moisture.
- The stems are succulent to conserve water.
- Leaves are mostly thick and small to minimize evaporation.
- give way to thorn forests and scrubs in arid areas.
- common animals are rats, mice, rabbits, fox, wolf, tiger, lion, wild ass, horses and camels.

Montane Forests

- In mountainous areas, the decrease in temperature with increasing altitude leads to the corresponding change in natural vegetation.
- As such, there is a succession of natural vegetation belts in the same order as we see from the tropical to the tundra region.
- The wet temperate type of forests are found between a height of 1000 and 2000 metres.
- Evergreen broad-leaf trees such as oaks and chestnuts predominate.
- Between 1500 and 3000 metres, temperate forests containing coniferous trees like pine, deodar, silver fir, spruce and cedar, are found.
- cover mostly the southern slopes of the Himalayas, places having high altitude in southern and north-east India.
- At higher elevations, temperate grasslands are common.
- At high altitudes, generally more than 3,600 metres above sea-level, temperate forests and grasslands give way to the Alpine vegetation.
- Silver fir, junipers, pines and birches are the common trees of these forests.
- get progressively stunted as they approach the snow-line.
- Ultimately through shrubs and scrubs, they merge into the Alpine grasslands.
- used extensively for grazing by nomadic tribes like the Gujjars and the Bakarwals.
- At higher altitudes, mosses and lichens form part of tundra vegetation.
- common animals found in these forests are Kashmir stag, spotted deer, wild sheep, jack rabbit, Tibetan antelope, yak, snow leopard, squirrels, Shaggy horn wild ibex, bear and rare red panda, sheep and goats with thick hair.

- of coasts influenced by tides.
- Mud and silt get accumulated on such coasts.
- Dense mangroves are the common varieties with roots of the plants submerged under water .
- The deltas of the Ganga, the Mahanadi, the Krishna, the Godavari and the Kaveri are covered by such vegetation.
- In the Ganga Brahmaputra delta, sundari trees are found, which provide durable hard timber.
- Palm, coconut, keora, agar, also grow in some parts of the delta.
- Royal Bengal Tiger is the famous animal in these forests.
- Turtles, crocodiles, gharials and snakes are also found in these forests.

MEDICINAL PLANTS

- India is known for its herbs and spices from ancient times.
- Some 2,000 plants have been described in Ayurveda and at least 500 are in regular use.
- The World Conservation Union's Red list has named 352 medicinal plants of which 52 are critically threatened and 49 endangered.
- The commonly used plants in India are:
 - ✓ Sarpagandha : Used to treat blood pressure; it is found only in India.
 - ✓ Jamun : The juice from ripe fruit is used to prepare vinegar which is carminative and diuretic, and has digestive properties. The powder of the seed is used for controlling diabetes.
 - ✓ Arjun : The fresh juice of leaves is a cure for earache. It is also used to regulate blood pressure.
 - ✓ Babool : Leaves are used as a cure for eye sores. Its gum is used as a tonic.
 - ✓ Neem : Has high antibiotic and antibacterial properties.
 - ✓ Tulsi Plant : Is used to cure cough and cold.
 - ✓ Kachnar : Is used to cure asthma and ulcers. The buds and roots are good for digestive problems.

WILDLIFE

- Like its flora, India is also rich in its fauna. It has approximately 90,000 animal species. The country has about 2,000 species of birds.
- They constitute 13% of the world's total.
- There are 2,546 species of fish, which account for nearly 12% of the world's stock. It also shares between 5 and 8 per cent of the world's amphibians, reptiles and mammals.
- The elephants are the most majestic animals among the mammals.
- They are found in the hot wet forests of Assam, Karnataka and Kerala.
- One-horned rhinoceroses are the other animals, which live in swampy and marshy lands of Assam and West Bengal.
- Arid areas of the Rann of Kachchh and the Thar Desert are the habitat for wild ass and camels respectively. Indian bison, nilgai (blue bull), chousingha (four horned antelope), gazel and.
- The natural habitat of the Indian lion is the Gir forest in Gujarat.
- Tigers are found in the forests of Madhya Pradesh, the Sundarbans of West Bengal and the Himalayan region.
- Leopards too are members of the cat family. They are important among animals of prey.
- The Gir Forest is the last remaining habitat of the Asiatic lion. The Himalayas harbour a hardy range of animals, which survive in extreme cold. Ladakh's freezing high altitudes are a home to yak, the shaggy horned wild ox weighing around one tonne, the Tibetan antelope, the bharal (blue sheep), wild sheep, and the kiang (Tibetan wild ass).
- Further more, the ibex, bear, snow-leopard and very rare red panda are found in certain pockets.
- In the rivers, lakes and coastal areas, turtles, crocodiles and gharials are found.
- The Bird life in India is colourful. Peacocks, pheasants, ducks, parakeets, cranes and pigeons are some of the birds inhabiting the forests and wetlands of the country.

- We have selected our crops from a biodiverse environment i.e. from the reserve of edible plants.
- We also experimented and selected many medicinal plants.
- The animals were selected from large stock provided by nature as milch animal.
- They also provided us draught power, transportation, meat, eggs.
- The fish provide nutritive food.
- Many insects help in pollination of crops and fruit trees and exert biological control on such insects, which are harmful.
- Every species has a role to play in the ecosystem. Hence, conservation is essential. As has been mentioned earlier due to excessive exploitation of the plants and animal resources by human beings, the ecosystem. Fourteen Bio-reserves • Sunderbans • Simlipal • Gulf of Mannar • Dihang-Dibang • The Nilgiris • Dibru Saikhowa • Nanda Devi • Agasthyamalai • Nokrek • Kanchenjunga • Great Nicobar • Pachmari • Manas • Achanakmar-Amarkantak

To protect the flora and fauna of the country, the government has taken many steps.

- Fourteen biosphere reserves have been set up in the country to protect flora and fauna.
- Four out of these, the Sunderbans in the West Bengal, Nanda Devi in Uttarakhand, the Gulf of Mannar in Tamil Nadu and the Nilgiris (Kerala, Karnataka and Tamil Nadu) have been included in the world network of Biosphere reserves. (ii) Financial and technical assistance is provided to many Botanical Gardens by the government since 1992. (iii) Project Tiger, Project Rhino, Project Great Indian Bustard and many other ecodevelopmental projects have been introduced. (iv) 89 National Parks, 490 Wildlife sanctuaries and Zoological gardens are set up to take care of Natural heritage.

Class-IX-Chapter-14-Natural Resources

Resources On The Earth

- the land, the water and the air, outer crust of the Earth is called the lithosphere,
- Water covers 75% of the Earth's surface comprise the hydrosphere,
- Air-covers the earth is called the atmosphere, life-supporting zone of the Earth where the atmosphere, the hydrosphere and the lithosphere interact and make life possible, is known as the biosphere.
- The air, the water and the soil form the non-living or abiotic component of the biosphere, carbon dioxide constitutes up to 95-97% of the atmosphere on Venus and Mars.
- the percentage of carbon dioxide in our atmosphere is a mere fraction of a percent because carbon dioxide is 'fixed' in two ways: (i) Green plants convert carbon dioxide into glucose in the presence of Sunlight and (ii) many marine animals use carbonates dissolved in sea-water to make their shells.
- air is a bad conductor of heat.
- when air is heated by radiation from the heated land or water, it rises.
- since land gets heated faster than water, the air over land would also be heated faster than the air over water bodies.
- air rises, a region of low pressure is created and air over the sea moves into this area of low pressure,
- During the day, the direction of the wind would be from the sea to the land
- Rainfall patterns are decided by the prevailing wind patterns.

Air Pollution

- The fossil fuels like coal and petroleum contain small amounts of nitrogen and sulphur
- Presence of high levels of all these pollutants cause visibility to be lowered, especially in cold weather when water also condenses out of air. This is known as smog and is a visible indication of air pollution

Water:

- A Wonder Liquid Fresh water is found frozen in the ice-caps at the two poles and on snow covered mountains.
- All cellular processes take place in a water medium

Water Pollution

- Water dissolves the fertilisers and pesticides that we use on our farms.
- The type of soil is decided by the average size of particles found in it and the quality of the soil is decided by the amount of humus and the microscopic organisms
- found in it the topmost layer of the soil that contains humus and living organisms in addition to the soil particles is called the topsoil.
- The quality of the topsoil is an important factor that decides biodiversity in that area
- The large-scale deforestation that is happening all over the world not only destroys biodiversity, it also leads to soil erosion.

Biogeochemical Cycles

The Water-Cycle

- The whole process in which water evaporates and falls on the land as rain and later flows back into the sea via rivers is known as the water-cycle,
- As water flows through or over rocks containing soluble minerals, some of them get dissolved in the water.
- Thus rivers carry many nutrients from the land to the sea, and these are used by the marine organisms

The Nitrogen-Cycle

- Nitrogen gas makes up 78% of our atmosphere and nitrogen is also a part of many molecules essential to life like proteins, nucleic acids (DNA and RNA) and some vitamins.
- found in other biologically important compounds such as alkaloids and urea too the nitrogen-fixing bacteria are found in the roots of legumes (generally the plants which give us pulses) in special structures called root nodules.
- Other than these bacteria, the only other manner in which the nitrogen molecule is converted to nitrates and nitrites is by a physical process.
- During lightning, the high temperatures and pressures created in the air convert nitrogen into oxides of nitrogen.
- These oxides dissolve in water to give nitric and nitrous acids and fall on land along with rain.
- Plants generally take up nitrates and nitrites and convert them into amino acids which are used to make proteins
- Once the animal or the plant dies, other bacteria in the soil convert the various compounds of nitrogen back into nitrates and
- A different type of bacteria converts the nitrates and nitrites into elemental nitrogen

The Carbon-Cycle

- It occurs in the elemental form as diamonds and graphite
- it is found as carbon dioxide in the atmosphere, as carbonate and hydrogen carbonate salts in various minerals,
- while all life-forms are based on carbon-containing molecules like proteins, carbohydrates, fats, nucleic acids and vitamins.
- The endoskeletons and exoskeletons of various animals are also formed from carbonate salts. Carbon is incorporated into life-forms through the basic process of photosynthesis which is performed in the presence of Sunlight by all life-forms that contain chlorophyll.
- This process converts carbon dioxide from the atmosphere or dissolved in water into glucose molecules

The Oxygen-Cycle

- In the crust, it is found as the oxides of most metals and silicon, and also as carbonate, sulphate, nitrate and other minerals.
- It is also an essential component of most biological molecules like carbohydrates, proteins, nucleic acids and fats (or lipids) Oxygen from the atmosphere is used up in three processes, namely combustion, respiration and in the formation of oxides of nitrogen.
- Oxygen is returned to the atmosphere in only one major process, that is, photosynthesis. the process of nitrogen-fixing by bacteria does not take place in the presence of oxygen.

Ozone Layer

- ozone is poisonous,
- It absorbs harmful radiations from the Sun
- Various man-made compounds like CFCs (carbon compounds having both fluorine and chlorine which are very stable and not degraded by any biological process) were found to persist in the atmosphere.

SCIENCE-CLASS-IX-NCERT

CHAPTER-15-IMPROVEMENT IN FOOD RESOURCES

- Food supplies proteins, carbohydrates, fats, vitamins and minerals, all of which we require for body development, growth and health.
- We obtain most of this food from agriculture and animal husbandry. Scientific management practices should be undertaken to obtain high yields from farms.
- For sustained livelihood, one should undertake mixed farming, intercropping, and integrated farming practices, for example, combine agriculture with livestock/poultry/fisheries/ bee-keeping.
- Cereals such as wheat, rice, maize, millets and sorghum provide us carbohydrate for energy requirement.
- Pulses like gram (chana), pea (matar), black gram (urad), green gram (moong), pigeon pea (arhar), lentil (masoor), provide us with protein.
- And oil seeds including soyabean, ground nut, sesame, castor, mustard, linseed and sunflower provide us with necessary fats.
- Vegetables, spices and fruits provide a range of vitamins and minerals in addition to small amounts of proteins, carbohydrates and fats.
- In addition to these food crops, fodder crops like berseem, oats or sudan grass are raised as food for the livestock.
- There are some crops, which are grown in rainy season, called the kharif season from the month of June to October, and some of the crops are grown in the winter season, called the rabi season from November to April.
- Paddy, soyabean, pigeon pea, maize, cotton, green gram and black gram are kharif crops, whereas wheat, gram, peas, mustard, linseed are rabi crops.
- the major groups of activities for improving crop yields can be classified as:
 - Crop variety improvement
 - Crop production improvement
 - Crop protection management.

CROP VARIETY IMPROVEMENT

- depends on finding a crop variety that can give a good yield.
- Varieties or strains of crops can be selected by breeding for various useful characteristics such as disease resistance, response to fertilisers, product quality and high yields.

- One way of incorporating desirable characters into crop varieties is by hybridisation.
- Hybridisation refers to crossing between genetically dissimilar plants.
- This crossing may be intervarietal (between different varieties), interspecific (between two different species of the same genus) or intergeneric (between different genera).
- Another way of improving the crop is by introducing a gene that would provide the desired characteristic results in genetically modified crops.
- For new varieties of crops to be accepted, it is necessary that the variety produces high yields under different conditions that are found in different areas.
- Farmers would need to be provided with good quality seeds of a particular variety, that is, the seeds should all be of the same variety and germinate under the same conditions.
- Cultivation practices and crop yield are related to weather, soil quality and availability of water.
- Since weather conditions such as drought and flood situations are unpredictable, varieties that can be grown in diverse climatic conditions are useful.
- varieties tolerant to high soil salinity have been developed.
- Some of the factors for which variety improvement is done are:
 - **Higher yield:** To increase the productivity of the crop per acre.
 - **Improved quality:** Quality considerations of crop products vary from crop to crop. Baking quality is important in wheat, protein quality in pulses, oil quality in oilseeds and preserving quality in fruits and vegetables.
 - **Biotic and abiotic resistance:** Crops production can go down due to biotic (diseases, insects and nematodes) and abiotic (drought, salinity, water logging, heat, cold and frost) stresses under different situations. Varieties resistant to these stresses can improve crop production.
 - **Change in maturity duration:** The shorter the duration of the crop from sowing to harvesting, the more economical is the variety. Such short durations allow farmers to grow multiple rounds of crops in a year. Short duration also reduces the cost of crop production. Uniform maturity makes the harvesting process easy and reduces losses during harvesting.
 - **Wider adaptability:** Developing varieties for wider adaptability will help in stabilizing the crop production under different environmental conditions. One variety can then be grown under different climatic conditions in different areas.
 - **Desirable agronomic characteristics:** Tallness and profuse branching are desirable characters for fodder crops. Dwarfness is desired in cereals, so that less nutrients are consumed by these crops. Thus developing varieties of desired agronomic characters help give higher productivity.

CROP PRODUCTION MANAGEMENT

- In India, as in many other agriculture-based countries, farming ranges from small to very large farms.
- Different farmers thus have more or less land, money and access to information and technologies.
- In short, it is the money or financial conditions that allow farmers to take up different farming practices and agricultural technologies.
- There is a correlation between higher inputs and yields.
- Thus, the farmer's purchasing capacity for inputs decides cropping system and production practices.
- Production practices can be at different levels.
- include 'no cost' production, 'low cost' production and 'high cost' production practices

NUTRIENT MANAGEMENT

- Just as we need food for development, growth and well-being, plants also require nutrients for growth.
- Nutrients are supplied to plants by air, water and soil.
- There are sixteen nutrients which are essential for plants.

- Air supplies carbon and oxygen, hydrogen comes from water, and soil supplies the other thirteen nutrients to plants.
- Amongst these thirteen nutrients, six are required in large quantities and are therefore called macronutrients. The other seven nutrients are used by plants in small quantities and are therefore called micro-nutrients.

MANURE

- contains large quantities of organic matter and also supplies small quantities of nutrients to the soil.
- prepared by the decomposition of animal excreta and plant waste.
- helps in enriching soil with nutrients and organic matter and increasing soil fertility.
- The bulk of organic matter in manure helps in improving the soil structure.
- involves increasing the water holding capacity in sandy soils.
- In clayey soils, the large quantities of organic matter help in drainage and in avoiding water logging.
- In using manure we use biological waste material, which is advantageous in protecting
- Based on the kind of biological material used, manure can be classified as:

(i) **Compost and vermi-compost:**

- ✓ The process in which farm waste material like livestock excreta (cow dung etc.), vegetable waste, animal refuse, domestic waste, sewage waste, straw, eradicated weeds etc. is decomposed in pits is known as composting.
- ✓ The compost is rich in organic matter and nutrients.
- ✓ Compost is also prepared by using earthworms to hasten the process of decomposition of plant and animal refuse which is called vermicompost.

(ii) **Green manure:**

- ✓ Prior to the sowing of the crop seeds, some plants like sun hemp or guar are grown and then mulched by ploughing them into the soil.
- ✓ These green plants thus turn into green manure which helps in enriching the soil in nitrogen and phosphorus.

FERTILIZERS

- commercially produced plant nutrients.
- supply nitrogen, phosphorus and potassium.
- used to ensure good vegetative growth (leaves, branches and flowers), giving rise to healthy plants.
- a factor in the higher yields of high-cost farming.
- applied carefully in terms of proper dose, time, and observing pre and post-application precautions for their complete utilisation.
- For example, sometimes fertilizers get washed away due to excessive irrigation and are not fully absorbed by the plants. This excess fertilizer then leads to water pollution.
- continuous use of fertilizers in an area can destroy soil fertility because the organic matter in the soil is not replenished and micro-organisms in the soil are harmed by the fertilizers used.
- Short-term benefits of using fertilizers and long-term benefits of Organic farming is a farming system with minimal or no use of chemicals as fertilizers, herbicides, pesticides etc. and with a maximum input of organic manures, recycled farm-wastes (straw and livestock excreta), use of bio-agents such as culture of blue green algae in preparation of biofertilizers, neem leaves or turmeric specifically in grain storage as bio-pesticides, with healthy cropping systems [mixed cropping, inter-cropping and crop rotation as discussed below in.
- These cropping systems are beneficial in insect, pest and wheat control besides providing nutrients.

(iii) CROPPING PATTERNS

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- Different ways of growing crops can be used to give maximum benefit.
- Mixed cropping is growing two or more crops simultaneously on the same piece of land, for example, wheat + gram, or wheat + mustard, or groundnut + sunflower.
- This reduces risk and gives some insurance against failure of one of the crops.
- Inter-cropping is growing two or more crops simultaneously on the same field in a definite pattern
- A few rows of one crop alternate with a few rows of a second crop, for example, soyabean + maize, or finger millet (bajra) + cowpea (lobia).
- The crops are selected such that their nutrient requirements are different.
- This ensures maximum utilisation of the nutrients supplied, and also prevents pests and diseases from spreading to all the plants belonging to one crop in a field.
- This way, both crops can give better returns. The growing of different crops on a piece of land in a pre-planned succession is known as crop rotation.

CROP PROTECTION MANAGEMENT

- Field crops are infested by a large number of weeds, insect pests and diseases.
- If weeds and pests are not controlled at the appropriate time then they can damage the crops so much that most of the crop is lost.
- Weeds are unwanted plants in the cultivated field, for example, Xanthium (gokhroo), Parthenium (gajar ghas), Cyperinus rotundus (motha).
- They compete for food, space and light. Weeds take up nutrients and reduce the growth of the crop. Therefore, removal of weeds from cultivated fields during the early stages of crop growth is essential for a good harvest. Generally insect pests attack the plants in three ways: (i) they cut the root, stem and leaf, (ii) they suck the cell sap from various parts of the plant, and (iii) they bore into stem and fruits. They thus affect the health of the crop and reduce yields.
- Diseases in plants are caused by pathogens such as bacteria, fungi and viruses.
- These pathogens can be present in and transmitted through the soil, water and air.
- Weeds, insects and diseases can be controlled by various methods.
- One of the most commonly used methods is the use of pesticides, which include herbicides, insecticides and fungicides.
- These chemicals are sprayed on crop plants or used for treating seeds and soil.
- However, excessive use of these chemicals creates problems, since they can be poisonous to many plant and animal species and cause environmental pollution.
- Weed control methods also include mechanical removal.
- Preventive methods such as proper seed bed preparation, timely sowing of crops, intercropping and crop rotation also help in weed control.
- Some other preventive measures against pests are the use of resistant varieties, and summer ploughing, in which fields are ploughed deep in summers to destroy weeds and pests.

STORAGE OF GRAINS

- Storage losses in agricultural produce can be very high.
- Factors responsible for such losses are biotic— insects, rodents, fungi, mites and bacteria, and abiotic— inappropriate moisture and temperatures in the place of storage.
- These factors cause degradation in quality, loss in weight, poor germinability, discolouration of produce, all leading to poor marketability.
- These factors can be controlled by proper treatment and by systematic management of warehouses.
- Preventive and control measures are used before grains are stored for future use.

- They include strict cleaning of the produce before storage, proper drying of the produce first in sunlight and then in shade, and fumigation using chemicals that can kill pests.
- Milk-producing females are called milch animals (dairy animals), while the ones used for farm labour are called draught animals.
- Exotic or foreign breeds (for example, Jersey, Brown Swiss) are selected for long lactation periods, while local breeds (for example, Red Sindhi, Sahiwal) show excellent resistance to diseases.
- The two can be cross-bred to get animals with both the desired qualities.
- Fish is a cheap source of animal protein for our food.
- Fish production includes the finned true fish as well as shellfish such as prawns and molluscs.
- There are two ways of obtaining fish.
- One is from natural resources, which is called capture fishing.
- The other way is by fish farming, which is called culture fishery.
- Popular marine fish varieties include pomphret, mackerel, tuna, sardines, and Bombay duck. Some marine fish of high economic value are also farmed in seawater.
- This includes finned fishes like mullets, bhetki, and pearl spots, shellfish such as prawns, mussels and oysters as well as seaweed.
- Oysters are also cultivated for the pearls they make.
- Brackish water resources, where seawater and fresh water mix together, such as estuaries and lagoons are also important fish reservoirs.
- As Catlas are surface feeders, Rohus feed in the middle-zone of the pond, Mrigals and Common Carps are bottom feeders, and Grass Carps feed on the weeds, together these species can use all the food in the pond without competing with each other.
- This increases the fish yield from the pond. bee-keeping needs low investments, farmers use it as an additional income generating activity. In addition to honey, the beehives are a source of wax which is used in various medicinal preparations.
- The local varieties of bees used for commercial honey production are *Apis cerana indica*, commonly known as the Indian bee, *A. dorsata*, the rock bee and *A. florea*, the little bee.
- An Italian bee variety, *A. mellifera*, has also been brought in to increase yield of honey.
- This is the variety commonly used for commercial honey production