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Factors affecting agriculture

Agriculture

Term:

Sanskrit Word – "Krish"

Lateen word "***Ager***"= Field

"***Culture***" = Care

According to Zimmerman (1951) " Agriculture covers those productive efforts by which man, settled on the land, seeks to make use of and if possible accelerate and improve upon the natural genetic or growth processes of plant and animal life, to the end that these processes will yield the vegetable and animal products needed or wanted by man"

According to Watson, S.J. (1950), " The original meaning of the term agriculture is the culture of the soil but this is much too an interpretation. The growing of crops and the rearing of livestock are as much a part of agriculture as the original cultivation of the soil……"

According to M. Carty & Limberg,"Agriculture is defined as the purposeful tending of crops & livestock."

Factors affecting agriculture

A. Physical environmental factors:

Agriculture depends to a great extent on the physical factors of natural environment.

➢ Climate:

The agricultural activities of the farmers are conditioned by the seasonal and spatial variations in the distribution of climatic elements.

- **Temperature**
  - Most plants cannot grow if the temperature falls below 6°C or the soil is frozen for five consecutive months. As a consequence many areas are unsuitable for crop cultivation.

- **Humidity and rainfall**
  - Water is obviously a key factor in plant growth. The greater the average temperature the greater the amount of water required for plant growth. Seasonal variation is important as different crops require water at different times.

  - **Example**, Rice is the principal crop in the tropics because it requires substantial quantities of water, is a very high yield crop and has good nutritional value. With the addition of consistently high temperatures it can also produce two or three crops a year.

- **Amount and duration of sunshine**
  - Light is critical in plant photosynthesis (the process of manufacturing food in plants as sugars) and chlorophyll (the green pigment in plants) production. Light also influences phototropism, mineral absorption, stomatal-movement, translocation, photo-morphogenesis and abscission. The intensity (degree or level of light brightness a plant receives), quality (specific light wavelengths) and day length (the duration plants receive light in a day) of light affects plant growth and development.
- **Wind**
  - Wind can have a destructive effect on crops. At its most severe a hurricane can physically destroy thousands of acres of farmland. Less severe but also harmful are the winds that dry soils so reducing moisture and increasing the potential for soil erosion.
- **Amount of different gases in the Air:**
  - Air in the troposphere comprise of 21% oxygen, 78% nitrogen and 1% argon gases, including carbon dioxide and traces of other gases. Crops require oxygen during respiration to produce energy used in different plant growth and development processes. During photosynthesis, plants require carbon dioxide to manufacture food.

Topography:

The angle of slope will affect the type, depth and moisture content of soil. It will also affect the rate of soil erosion.

Soil:

Soil type will influence crop cultivation because different crops prefer different soils. Clay soils with their high water retention are well suited to rice whilst sandy soils with good drainage are good for root vegetables. Soil type can be influenced through the input of lime, clay or fertilizer but this can only make limited differences. Soil erosion is an important inhibitory physical factors faced by the farmers in the cultivated area.

Organic matter:

A good supply of soil organic matter is beneficial in crop or forage production. Consider the benefits of this valuable resource and how you can manage your operation to build, or at least maintain, the organic matter in your soil.

➢ Plants:

Plants are also used in agriculture to help reduce wind speed. Planting trees in a row prevents the wind from blowing away the valuable topsoil. In the forest, trees act as shelter for many organisms.

➢ Animal and Insects:

Animals are called pests (organism) when they cause damage to agriculture by feeding on crops or Parasitizing livestock, such as codling moth on apples, or boll weevil on cotton.

B. Economic environment:

In addition to the physical factors, agricultural land use, cropping pattern and agricultural processes of the cultivated area are also largely influenced by the socioeconomic factors.

➢ Nature of land ownership:

Private (belongs to an individual, company or cooperative)
Collective (belongs to a community: tribe, municipality, state)

➢ Size of land holding:

Efficiency of agricultural operation depends to a large extent on the possession and size of landholding of the peasants. The size of landholding and the size of farm decide the degree of risk that a farm operator may bear. The households are classified into different categories as <0.5, 0.5 -1, 1-2, 2-5, 5-10 and 10 hectares.

➢ Mechanization:

Mechanization is also an important socio-economic factor affecting agricultural development. The technological changes including the use of modern hand tools, animals drawn implements, tractors, thrashers and more economic patterns of farm management play a vital role in the selection of crops grown and decision-making at the farm level. These changes help in improving the crop yields.

➢ Supply of Labour:

The availability of labour, its quantity and quality at the periods of demand have great influence on the agricultural land use and decision making process of the farmer.

➢ Experience and Stillness of Labour:

Availability of cheap and efficient labour is essential for the cultivation of crops like rice, tea, cotton and rubber. Thus, the factor of availability of labour also plays a vital role in agriculture.

➢ Operational efficiency:

Agricultural productivity is usually considered to depict the efficiency of the production process. Efficiency is necessary in the context of limited availability of natural resources, such as land and water, and given the necessity to limit the environmental footprint of agricultural production.

➢ Land Revenue System:

Land administration in the study area is different during different periods of time. For the realization of revenue, the kings or the rulers adopted different land revenue systems.

➢ Capital:

In the developed world there is a well-established system of supportive banks, private investors and government subsidies. This means that agriculture is likely to be **capital intensive** and **highly mechanized**. Cereal growing and dairy farming are good examples.

Transport and communication:

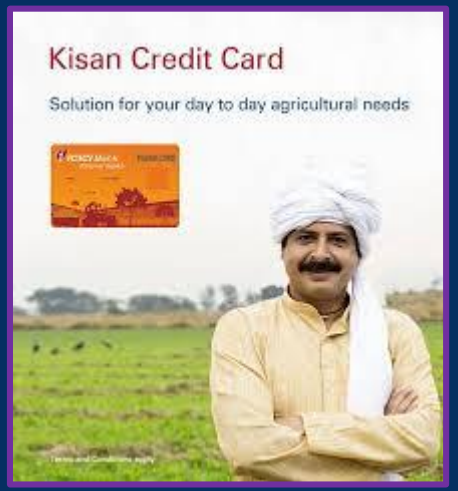
Transport is an important factor in determining location of farm types. If a product is bulky such as potatoes then it should be grown close to the market place to cut down on transport costs. If the good is perishable then again it should be grown close to the market place. This is not only necessary for the movement of agricultural products but also for the supply of fertilizers, machineries, seeds and other requirements of the farmers. Efficient transport system can save time when grains and other crops are being moved from the farmer's home to the market.

Market (Demand of Agricultural Crops)

Market places are the fundamental focal points of socio-economic life (Ghosal, 1972). Marketing is one of the stimulating factors for the development of agriculture. Commercial crops like potato, jute, vegetables can be produced if good marketing and transport facilities are available. The high yielding varieties fetch better income to the peasants only if a good market for the commodity is available within the neighborhood of the place of production or the produce can be transported with ease and with less transportation charges in the big towns and places of demand. Many a times due to the non-availability of marketing, cold storage and ware-housing facilities, the production is damaged. This may discourage the peasants to adopt high yielding varieties.

➢ Agricultural loan and insurance:

Agriculture finance and agricultural insurance are strategically important for eradicating extreme poverty and boosting shared prosperity. We advise governments on policies for agriculture insurance (e.g. financial incentives, premium subsidies, and the overall role of government to promote agriculture insurance) and on development of effective insurance products.



➢ Organization or Direction:

organization of agricultural producers in producer organizations, and to determine further directions of development of this kind of cooperation. Cutting off anything linked to the former central planned system resulted in neglecting achievements of the cooperatives and also neglecting economic and social benefits that may be achieved by cooperatives. Agricultural cooperatives transformed from socialist enterprises to member controlled firms, although this transformation was successful in the small number of cooperatives.




➢ Science and Technology

New technology is always increasing efficiency and yields but technology costs money. Therefore the gap between the developed and developing world is growing. The one exception is the **green revolution**.




C. Social environmental

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.

➢ Education facility:

Farmers require ongoing education to stay aware of fast-moving developments in technology, science, business management, and an array of other skills and fields that affect agricultural operations.

➢ Social security:

Social protection policies aim to reduce socio-economic risks, vulnerability, extreme poverty and deprivation, while smallholder agricultural policies focus on improving productivity in crops, fisheries, forestry and livestock and improving access to markets.

➢ Population growth:

As the world's population increases the need for land for agriculture grows

land to grow crops

land for pasture

To supply this land humans change the environment and affect the natural vegetation and relief These changes in the landscape and the over-exploitation of resources cause serios problems for the environment and animal species.

➢ 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.

➢ Government policy:

Government policies will have a direct or indirect effect on the prevalent agricultural system. The communist governments encourage collectives as already seen whilst farming in Europe is indirectly manipulated by the agricultural policies of the European Union.

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Thank you