Agriculture industry

Business, Industries

Agriculture is an art, scienceand industry of managing the growth of plants and animals for human use. In broad sense, agriculture includes cultivation of the soil, growing and harvesting the crops, breeding and raising livestock, daring and forestry. Modern agriculture is engineering andtechnologybased. Therefore, mechanization has eased much of the back breaking toil to the farmer. Agriculture is the backbone of economy of most of the countries of the world.

About 48 percent of world's labour force is engaged with agriculture. For some countries, agriculture is the major source of foreign exchange for example Sri Lanka depends upon tea, Denmark specializes in dairy products and Australia in wool. Nations depends on agriculture not only forfoodbut for national income and raw materials for industry as well, trade in agriculture is a constant international concern. Agricultural scientists are of opinion that, about 40% of 37 million acre land of the world may be considered cultivable.

Today, only 5. 5 million sq miles (10% to 11%) of the land surface is actually cultivated. It is fact that nature sets the outer limits of man’s potential resources, because physical limitation, like temperature, rainfall, soil character and physiography, fix up the outer limit of cultivable land. Factors Governing Agriculture: Today, agriculture has become an industry. Therefore, like all other industries, its development depends upon multiple factors.

Basically, physicalenvironmentimposes limits on the distribution of agricultural activity but cultural environment at the same time has its own importance for this activity because, agricultural patterns in the world are the result of interaction among the influences exerted by the physical,

economic and social factors. The factors of agriculture can be divided into following classification. I. Physical Factors II. Human Factors / Non Physical Factors A. Economic Factors B. Political Factors C. Social / Cultural Factors Physical Factors of Agriculture:

Man's agricultural activities depend on the physical environment in which he lives although he often has tried to minimize the restrictions imposed by the natural conditions. Nature in its diverse manifestations provides man in different areas with a variety of possibilities for development. To examine the agricultural activity of man in the world, it is necessary to know about the natural and physical factors of the world, which are as follows: 1. Terrain 2. Climate 3. Soils 4. Water Resources 5. Forest Cover 1. Terrain:

Many agricultural geographers have analysed the influences of terrain on agriculture and it indeed plays a significant role in land-use variation. The three most significant aspects of terrain are: (i). Attitude (ii). Slope (iii). Drainage texture (i). Attitude: The primary consequence of altitude is decrease in air pressure with the increase in elevation. At the height of 3500 m and above the decreased atmospheric pressure causes nausea and agricultural activities cannot be carried out despite conditions being favourable to numerous domesticated plants.

Usually the rarefied air of the high mountains increased transpiration rates of plants, which unfortunately restricts growth. In tropics, altitude is of special significance for utilization of the land for agriculture. Modification in temperature and not infrequently in humidity conditions associated with increasing elevation make these areas habitable for farming communities. The important secondary consequences of increasing elevation, both

agronomically and economically significant are decreased temperature, increased precipitation, increased wind velocity, poor soil and rugged relief.

All these factors a negative role on agricultural activity and they minimize the agriculture and agricultural products. Even increase in precipitation on elevations are has significant role for agriculture because at those place moisture results in snowfall which makes agriculture very difficult. (ii). Slope: Slope of land is also one of the important physiographic aspects influencing the agricultural land use of an area. It is universal fact that with increase in steepness of slope the use of even very simple farm machinery becomes difficult. Steep slopes are generally avoided by farmers.

Livestock farming may be equally effected by slope. It is difficult for animals to more on and graze in the pasture situated on very steep slopes. Accessibility is the most potent factor in agricultural land-use in mountainous regions at any slope or elevation, and inaccessibility at places can put all the development efforts in reverse gear. Easy access is essential specially for perishable agricultural commodities like vegetable and fruits grown in mountainous area, although technological developments have reduced its significance. Milk and meat cannot be kept for a long time and need quick transportation.

Soil erosion is a major problem of almost every slope. Soil erosion affects the agricultural activity of that area moreover the arrangements of irrigation cannot be easily made on the hilly areas with slopes. Sunshine is another issue related with slpe. Agriculture is practiced only at sun facing slopes. The slopes which do not receive direct rays of sun are unable to grow crops. (iii). Drainage Texture: Drainage texture is expressed as the total length of

streams per unit area, while its reciprocal is the distance between two adjacent channels.

These are two important parameters by which one can estimate soil erosion. The critical value of drainage density per square km which may cause faster soil erosion. The heartland of water erosion areas satisfy almost all the requisites of soil erosion. Soil erosion from cultivated fields, grazing lands, forest areas and the catchment areas of big rivers affects a nation's agricultural economy as a whole. Accelerated erosion produces abnormal quantities of sand, silt, and shingle that are carried from the field and stream system and deposited on the lower land, lessening its productivity.

Excessive water erosion areas coincide approximately with the areas of confluence of many tributaries or areas of joints and cracks. 2. Climate: Climate controls agriculture more than any other factor. The pole-ward limit of agriculture is set by the isotherm for the warmest month. Particular climate suits particular crops. Temperature and rainfall are two main controlling factors of agriculture and some others aresnow, wind, mist and fog etc. we can make a list of them as. (i). Temperature (ii). Winds (iii). Snow (iv). Humidity (v). Fog (vi). Sunlight (vii). Rainfall (i).

Temperature: For plant growth certain upper and lower limits of temperature control the plantation in certain areas temperature of lower limit and temperature of upper limit, certainly control the agricultural activity in the world. While some plants grow in the high temperatures and like rubber, rice, banana, tea, date, oil palm etc. Some plants requires moderate or low temperatures like wheat, barley, almonds and oranges etc. Natural

vegetation distribution regions clearly depict temperature control likewise, the agricultural regions and products follows the temperature control.

(ii). Winds: Winds and atmospheric pressure exert direct and indirect influence on the agriculture. The zones of trade winds especially eastern corners of continents are not suitable for agriculture due to aridity. High winds generally act as deterrent to the growth of crops in various ways. * Unusual high velocities of winds may damage the standing crops. * Snow drifts and chilled winds may damage the crops. * Hot and dry winds may not allow to grow crops in their areas. (iii). Snow: Snow has its own bearing on livestock and cropping.

Snow drift results in loss; and melting of large masses of snow creates floods and water logging. In general, there are two major places where snow falls, i. e. higher elevations and higher latitude. When snow fall occurs heavily, it blocks the roads, tracks, foot paths. This retards the accessibility to field and markets. In general, it slackens all the agricultural activities of the area. Agricultural activities are resumed with the advent of summer season. Unfortunately huge losses often occur along the streams by sudden flooding caused by a large mass of melting snow.

On the other hand, snow cover is advantageous to agriculture because it insulates the ground from extremely low air temperature and retards deep penetration of frost action. This make soil available for cultivation rather more quickly when the snow begins to thaw. (iv). Humidity: Humidity is one of the prominent elements of weather from the farmer’s point of view and plays a significant role in changing agro climatic conditions from place to

place. Of the many possible beneficial influences of high atmospheric humidity on plant growth, following are most significant.

* Many a plant can absorb moisture directly from an under saturated air of high humidity. * Humidity affects the photosynthesis in plants. * Most plants grow well in conditions of high atmospheric humidity because very often saturated air stops transpiration. (v). Fog: Fog, that is very thick mist, is really much like low hanging clouds and appears as a dense mass of small water drops in the lower layers of atmosphere. The negative aspect of fog manifests itself when it persists for several consecutive days, blocking the sun's light. Consequently plant growth is retarded and plants are likely to be attacked by pests and diseases.

On the other hand fog and mist are the sources of moisture supply in many areas like crops of tomatoes, peppers, beans and other vegetables can be grown in southern California where fogs are frequent without irrigation and even rainfall does not come in the growing season. (vi). Sunlight: Sunlight is a factor of great physiological importance to plants because it helps in the formation of chlorophyll. The source of sunlight is the sun and its attribute depends upon the sunshine. The total amount of light that falls on the earth varies from place to place.

The intensity, quantity and duration of the sunlight depend upon the latitude, altitude, season and the conditions of the atmosphere at a given place. On all the places on equator, the sun shines for 12 hours a day round the year. However away from the equator towards the poles the days become progressively longer during summer reverse is the case during winter when days are comparatively shorter. This seems to account for the fact that

summer crops mature faster than the winter ones since the former can get the needed light and sunshine in the minimum possible period. (vii). Rain Fall:

Rain fall is another climate element and major factor is mainly responsible for plant growth and distribution and certain areas for specific plants or agriculture practices etc. Rubber is the tree of the equatorial region, and requires high rain fall uniformly distributed throughout the year. It may be said that rain fall is the most important climatic factor as it determines the potential of any region in terms of crops to be produced, farming system to be adopted, the nature and sequence of farming operations to be followed, and the targets to be achieved in agricultural productivity.

The cultivator are more optimistic about a bumper crop, in those seasons when moisture receipts are considerably above normal. In a region where rain fall is confined to a particular season and ground water resources are wanting, a drought will not be an unusual phenomenon. Sometimes the distribution of rain fall is so irregular, not only in amount but also in time and space, that it creates water deficiency everywhere. These variations may produce dry spells. Therefore, the emergence of way ward behavior of rainfall from year to year gives rise to different cropping patterns and imbalances in levels of agricultural productivity.

3. Soils: Soils constitute the physical base for any agricultural enterprise. Farming is a business and good soil is the part of the farmer’s stock in trade. Together with their fertility and special qualities, soils influence the particular types of food, fibre, horticultural crops and olecultural crops. * Physical characteristics and properties of soil determines the types of the crops and

their distribution. * Crop growth is determined to a considerable extent by the amount of nutrients in the soil. The three basic nutrients nitrogen, phosphorous and potassium, contribute to soil fertility.

* Differences in soil fertility have the greatest impact on agricultural land use throughout the world. Unenlightened farming may lead to the rapid soil exhaustion. Soil resources are very important, and these must be carefully husbanded, so that these are conserved and not exploited. Improvement in water supply to crops, use of chemical fertilizers, and high-yielding exotic seeds, accelerate the rate of cropping intensity but at the same time they may have very harmful effects on the soil. 4. Water Resources:

Availability of water to the crops is very much important because without water crops cannot be survived and we cannot think about agriculture at all. On the other hand, sufficient and assured water supply to the farming systems would yield superior, stable, diversified and commercially profitable farming, and a vastly superior living standard to peasant proprietors. Many parts of the world use irrigation for the activity of agriculture. The major sources which are used for irrigation are: (i). Ground water (ii). Surface water (iii). Desalinated water (i). Ground water:

Ground water is often called under ground water which occurs below the surface of the earth. On the whole ground water is very unevenly distributed beneath the surface of the land. Moreover, the behavior of such unique storage of underground water is not consistent. It varies from year to year and season to season. Ground water is a major source of irrigation. It can be used from simple Persian wells to modern tube wells. In ovrid areas it is used

through Karez system. Judious tapping of ground water resources is the need of the hour for avoiding excessive over draft and depletion of ground water.

Water table is also important for agricultural point of view. If water table is too low then (in the absence of surface water source), the area cannot grow crops. The very high water table causes the two dangerous disease of land; water logging and salinity means again the area cannot grow crops. (ii). Surface water: Surface water supply is controlled by several factors such as large quantity of water in the form of rivers, streams, lakes, glaciers, gentle surface gradient and soft land. These make possible the construction of a network of canals.

For such schemes, ideal conditions are prevailed in the plains of Niles, Ganges and Indus etc. so that these all plains are intensively irrigated. The main problems in surface water utilizations are: * Prevention from evaporation in dry lands is a major problem. * Intensive irrigation may invite water logging and salinity. (iii). Desalinated water: The ocean and inland seas are also the source of water. Containing about 93 percent of earth's water but not usable because of salt and contaminations. It would be great value to areas along the coasts which are in need of supplementing the short supplies of agricultural water.

Some attempts have been made to utilize desalinated water for agriculture but this process is no doubt very costly. It has been estimated that at present in the western part of United States desalinated water costs between between fifteen and twenty five times more than irrigation water obtained from rivers or wells. Now in this modern era the constantly expanding need for fresh water for various purposes, especially agricultural and industrial,

requires technically and economically feasible processes for desalination. 5. Forest Cover:

In the beginning, agricultural development benefited from forests by the use of natural species to breed more resistant varieties of cultivated crops. In addition to this forest also satisfied man's material and socio-economic needs. Forest are also important for environmental balance and for charging the ground water. They are also important for providing water for irrigation in terraced we lands in mountains. Forests are badly effected by the agricultural activities of man in many areas of the world but their preservations are very important.

A recommended and balanced extent and density of forest cover has to be maintained, so as so keep an ecological balance between man, agricultural land use and natural vegetation cover for achieving an optimum efficiency in agricultural land use at minimum level of hazards and costs in an area. Human / Non Physical Factors: No doubt that Agriculture depends on physical environment but the socio cultural forces can not be neglected at all. Agricultural activities depend upon interrelated physical and non-physical factors.

Non physical factors can be classified as follows: A. Economic Factors B. Political Factors C. Social / Cultural Factors A. Economic Factors: Agriculture provides employment for 48% labour force of the world's population. Therefore, its economic importance and development needs proper investment for certain facilities to improve its yields for economic welfare of the farmers and food requirements of the growing world population. The

factors of agriculture that needmoneyare known as economic factors of agriculture.

(i). Capital (ii). Agricultural Machinery (iii). Transportation (iv). Market (v). Cold storage (vi). Irrigation (vii). Pesticides / Herbicides (viii). Fertilizers (ix). High yielding verities (i). Capital: The capital or investment is the basic requirement for the agricultural activity. To practice the agriculture on modern grounds, a large investment is required. (ii). Agricultural Machinery: To keep pace with changing nature of agricultural process, modern agricultural machinery is required.

Now a days combined harvester, threshers, sprinkled irrigation are necessary to gain a handsome productions. (iii). Transportation: The role of faster means of transportation cannot be forgotton in agriculture fruits, vegetables and dairy products are perishable items and they can only bring to the market in the presence of faster means of transportation. The advancements of transportation methods reduces the expenditure and wastage of the agricultural products. (iv). Market: Market place is a very important factor in agriculture.

The markets for perishable agricultural products must be located near to the farms to deliver products to consumers as rapidly as possible. (v). Cold storage: Now a days storage / cold storage are too much necessary for agriculture point of view because whole yield of crops cannot be consumed at once. Grain crops required a proper storage in this way, they can be consumed throughout the year for example wheat, vegetables like peas, tomatoes, potatoes required cold storage for preservation. (vi).