1. **FARMING TPES, METHODS AND PROBLEMS**

 **1-Nowadays the word industry' suggests to most people factories, machinery and towns. This, however, is a comparatively new and specialized meaning of the word.**

**Industry' really means, quite simply, 'work', and in this broader sense the oldest and most essential industry of all is farming, the work which provides us with the first basic necessity of our existence- food.**

 **In the preceding chapters the emphasis has been on the animals and plants which supply this and other needs; in the present chapter the emphasis Is on man himself, and on the various ways in which indifferent environments he organizes his farming activities, the methods he uses and the problems he has to face.**

**In some environments Nature is generous with her favours , and the farmer's task is easy, but in others, where Nature is grudging, two alternative developments are possible.**

**Man may remain at the mercy of his environment or he may by the application of thought and the exercise of ingenuity rise superior to it and build for himself a fuller richer life.**

 **The measure of man's control over his natural surroundings is shown in each of the broad types of farming which are described below.**

**2- Mountain areas**

**In certain mountainous countries animals Which have wintered on the scanty patches of lowlands or In byres may be driven up the mountain sides to summer pastures, temporarily free from snow, so that craps can be grown on the land the animals have vacated. This seasonal migration of men and beasts is known as transhumance.)central Norway.**

**for example, herdsmen and dairymaids accompany the dairy cattle from the coastal lowlands, where they have sheltered throughout the winter, to summer pastures on the high moorlands or fields. Here they live in groups of log cabins called saeters until the snow returns in autumn. Meanwhile, crops of hay for winter fodder and perhaps cats or barley, are grown on the lowlands. Switzerland provides a similar example. The cattle are taken from the valleys. First to spring pastures on the lower slopes of the mountains the Voralpen or Mayen), and later move up to summer pastures on the Albe or Alpen, returning, after a further stay in the Mayen, to the valleys for the winter. This seasonal movement involves a large section of the village community, and the departure of the herds in early spring is often made the occasion for a public holiday. in which the animals are bedecked with ribbons and bells and various traditional ceremonies are enacted. Transhumance is also characteristic of many other mountain areas, such as the Carpathians, the central Andes and Tibet.**

**Mediterranean areas:-**

**Farmers in areas bordering the Mediterranean Sea are confronted by two major problems - soils which are in general this and barren, and drought during summer, when the crops are most in need of water. Both plants and men have, however, learnt to adapt themselves to such conditions, and the Mediterranean lands have been the home of a series of important civilizations. Most of the plants are characterized by drought resisting devices (long roots, fleshy, waxy or hairy leaves) and cultivation in the scattered fertile areas is extremely intensive. Irrigation (often involving terracing of the slopes, as in the huertas of southern Spain) is widespread, and crops are carefully selected to fit the seasonal alternation of rainfall and drought. It is usual -as well as more economic for Mediterranean farmers to produce commercial crops of fruit, for which the climate is suitable, in preference to subsistence crops of grain. Cattle rearing is virtually impossible in view of the summer drought, and pastoral activities are confined to sheep and goats.**

**Transhumance 'is widely practiced in the highland regions.**

**3- Irrigation:**

**Irrigation is the term applied to the artificial application of water to land to which Nature has denied sufficient rainfall for the cultivation of crops. The problem is one both of time and place. Where rainfall is unevenly distributed throughout the year, the problem is essentially one of time, and efforts are directed not only to making use of the water which accumulates in the rainy season before it can run to waste, but also to storing it for use later in the year. In permanently dry areas it is a question of place, and water is brought by canals from where it is plentiful.**

**Traditional irrigation**

 **Two main methods may be distinguished:**

**Basin irrigation, in which flood waters are held on the land in shallow basins enclosed by banks. This method has been used by the Egyptians from prehistoric times. Monsoon rains in the Ethiopian Highlands cause the Blue Nile to rise and flood the land bordering the lower White Nile, depositing layers of valuable silt and enabling the farmers to grow crops during the next few months.**

 **Basin irrigation alone does not, however, permit the growth of crops after the flood waters have soaked into the ground or have evaporated.**

**Perennial irrigation (i.e. 'all -the - year- round‘ irrigation ), in which water is distributed by a network of canals and ditches leading from a river. Irrigation schemes of this kind were in operation thousands of years ago 'in the upper Indus 'valley, in Egypt and in the Red Basin of China, the water being lifted from the canals by a variety of primitive devices, such as the shaduf or the sakiyeh, many of which are still in use today, despite the increasing use of petrol or diesel driven pumps. In the drier parts of the Mediterranean area mountain streams are tapped by ditches and pipes , which lead the water down to fertile patches in the valleys. The productive huertas in southern Spain are part of a remarkable irrigation scheme of this kind originally devised by the Moors, which was to a great extent allowed to fall into disrepair after their departure.**

**Various other ways of irrigating the land are possible:**

**Wells may be sunk to enable water to be obtained from saturated rocks below the water table. These are in important source of water in the upper Ganges Basin, where oxen may be seen patiently hauling over a pulley wheel a rope, to the end of which is attached a leather bucket.**

**The ' tanks' of southern India and Sri Lanka are really shallow reservoirs formed by earth dams built across valleys so that water from the monsoon rains is held up and stored. Unfortunately, 'tanks‘ often dry up when the water is most needed.**

**Modern irrigation**

**Irrigation nowadays is no longer a matter for local enterprise, but comes within the sphere of government activity. Comprehensive undertakings often combine the development of arid areas with the production of hydro -electricity, the control of floods and the improvement of navigational facilities, and involve the expenditure of vast sums of money on the building of enormous concrete dams and other major engineering works. Such projects are so costly that poorer countries are usually forced to raise international loans in order to finance them.**

**A number of dams or barrage (i.e. Very wide or complicated dams) principally or solely for the purpose of irrigation have been constructed across the Indus and the Nile and ‘their tributaries.**

**In 1960. India and Pakistan signed an Indus Waters Treaty with a view to the large scale deveIOpment of irrigation in the semidesert area of the Indus valley. This involved extensions to existing schemes depending on the Sukkur (or Lloyd) Barrage, inaugurated in 1932, and in dams at Kotri (the Ghulam Mohammed Barrage), Taunsa and Gudu, and the building of a number of additional dams on the five rivers of the Punjab. Those already completed are shown "In Fig , but**

**there are others still under Construction.**

**4- Rotations of crops**

**Soil fertility can be maintained without‘ the use of fertilizers by growing different crops in a systematic succession. This is known as rotation of crops, and when a suitable rotation has been worked out for a particular type Of soil, it can be repeated indefinitely. The general principle which underlies th practice is that the plant foods which are taken-from the soil by one crop are replaced by the others, so that at the end of each' rotation the character and quality of .the soil are unchanged.**

**The Chinese peasant farmer long ago ’ discovered from experience that one of the ways in which he could keep his land fertile and secure a high yield was to alternate throughout the year crops of rice, beans, clover and vegetables, but the knowledge of rotation came to Europe very much later. In England the earliest and most elementary attempts at preventing exhaustion of the soil consisted merely in growing grain one year and grass the next, and in parts of Northumberland this simple rotation was still being used at the beginning of the present century. Until about 1600 the most general practice was the triennial fallow', a form of rotation which was probably brought to Britain by the Romans. Corn was grown on the same piece of ground for two years, then for the third year the land was ploughed (often several times) but no crops were sown in other words, the land 'lay fallow'. The soil was thus cleansed and enriched, ready for renewed cultivation (fig. ).**

 **The introduction from the Continent of two crops, hitherto unknown in Britain -turnips and ciover-opened up now possibilities, and soon it became customary to sow these on the fallow. The turnips helped to clear the land of weeds, and the clover (as we now know ) put back into the soil nitrogen which had been removed by the grain.**

 **By the middle of the eighteenth century, the so-called 'Norfolk' rotation had been evolved, a 'fourfold shift' which has since Sometimes corn was grown the first year and beans the second.**

 **Since time was allowed for the solution of Jtential plant food.**

**Reclamation and drainage:**

 **From parts of the earth's surface WhICh are too dry for cultivation . we "0W turn to areas which are too wet. Here also man has aChieved a measure of control over his environment, and by various methods .of artifiCial drainage has been able to 'reclatm' from Nature land which was originally either water -togged or temporarily or permanently under water.**

**The fertile alluvial lands in the flood plain of a river are panicularly liable to periodic inundation. and numerous examples can be found in the British Isles of the time-honoured methods of dealing with the problem. The course of the river is straightned by cutting canal across the meanders. so that the gradient is increased and the water is carried away to the sea more rapidly; a network of ditches allows the excess water to drain off the land, and the banks of the river are artificially raised to lessen further the risk of flooding.**

**Nowhere in the world are questions of reclamation and drainage so vital as in the Netherlands, where the Dutch have always had to protect themselves from both sea and river. Behind a belt of coastal dunes lies an area of rich clay known as Holland (i.e. the 'hollow land" ) from which the sea has been excluded by lines of banks or 'dykes', while the group of islands which form the province of Zeeland at the mouths of the Rivers Lek, Waal and Maas is similarly protected. Water which accumulates in the polders ( i.e. the drained units of land within the dykes) is collected in canals and raised to the river or the sea by diesel pumps, which have now almost completely replaced the windmills so often associated with these parts of the Netherlands.**

**A far more ambitious project than any so far attempted was begun as long ago as 1920, and aims at the reclamation of the greater part of the land beneath the shallow waters of the Zuider. Zee (fig. ). A massive dyke (the Usselmeer Dyke), over 29km (18 miles)long and traversed by a motor road and cycletrack, has been built across the opeing of the Zee (fig.) ); behind this main dyke four large areas around what is now Lake Ussel have already been 'empoldered'. After draining, the soilsare at first to salty for cultivation, and reclamation is not really complete until special grasses have been planted and allowed to grow for a few years. While the roots help to bind the soil together, the dead leaves rot and form humus, and the rainwater washes out the salt, remained the standard rotation for light and medium soils (fig ). In the first year wheat is grown; in the second a root crop,probably turnips; in the third; barley; and in the fourth, a leguminous crop, such as clover or beans, it should benoted how in this succession**

**1-the functions of the various crops are skillfully dovetailed so as to maintain the fertility of the soil.**

**2-Provision is made for the different operations involved in intensive mixed farming. Root crops clear the land and supply winter feed for sheep and cattle; wheat and barley provide poultry food and straw for bedding cattle; clover provides both pasture and hay for fodder; and sheep and cattle manure the ground.**

**3-The traditional English diet of bread, beef and beer was catered for.**

**5 -Wheat -producing areas**

**In the following pages no attempt will be made to describe at length the great wheat‘ producing areas of the world; full details will be found in the appropriate regional textbooks. Certain topics which illustrate some of the foregoing considerations must, however, be mentioned.**

**The Canadian Prairies (fig. ) produce in an average year 19 million tons of wheat out of a world total of 315 million. Since Canada has a population of only 22 million, two thirds of the crop is available for export, most of it being absorbed by the United Kingdom. Winters in the prairies are severe, and the seed has of necessity to be sown in spring. Fortunately, the area is subject at this time of year to the warm Chinook wind, which can effect overnight such remarkable and sudden increases in the temperature that the snows of winter are quickly cleared away, and a period of about 110 days follows, in which the wheat is able to ripen fully. Declining yields and the onset of soil erodion (see pp. 1703) have in recent years led to the introduction of mixed farming, in which animals help to restore fertility of the soil by supplying manure.**

**The United States is the world's second largest wheat producing country, but having such a large population (estimated in 1970 to be 207 million) it was not normally, until after the Second World War, an exporter of wheat. In ' the colder northern parts around Minneapolis the crop is spring -sown, but farther south, in Kansas and Oklahoma, it is possible to grow winter wheat. As in Canada, the wheat is grown on the extensive system and the yield per unit area is less than half that of the United Kingdom.**

**The USSR is now the world's largest wheat producer, but although thirty years ago the country was a major exporter, in recent years it has been forced to import considerable quantities from Canada and the USA. Most of the wheat is grown (on the extensive system) in the 'black earth' steppelands north of the Black Sea, and the yield is slightly lower than in any of the other mid-latitude grasslands.’ with improved transport facilities and the discovery of varieties which will resist drought and ripen more quickly, the producing area has expanded some 3 200km.(2 000 miles) eastWard into Siberia.**

**(1)**

 **Europe (excluding the USSR) ranks high among the wheat growing regions, of the world, in fact , France alone produces 4 million tons more than Australia. But insufficient grain is grown in Europe to feed the dense industrial populations, and con siderable quantities are imported from the mid -latitude grasslands. Since land is valuable and the winters are not severe, the wheat is sown in the autumn and grown on the intensive system.**

 **The pampas of Argentina and the downs of Australia provide immense tracts of land suitable for extensive wheat -growing , and both countries have small populations. They**

**1) There is little point in distinguishing between the imperial ton**

 **(2 204.62 ib) and the metric ton (or tonne) of 1 000kg. For general purposes the difference is negligible, since a metric ton is 0.9842**

**of an imperial ton. The 'short' ton used in America is of 2 000ib.**

**are, therefore, notable exporters. Moreover, since they are situated in the southern hemisphere, their crops become available when stocks in the northern hemisphere are running low. But they suffer from the disadvantage of being at a great distance from their markets (that is , countries which are willing to buy their products) in Argentina wheat is now grown in areas where not so long ago gauchos (half Indian cowboys ) reared horses and cattle. The industry is not very highly organized, and since there are few facilities of milling, the crop is exported as wheat and not as flour.**

 **Northern China produces nearly twice as much wheat as Canada, but all of it is consumed within the country. The Chinese have of recent years displayed an increasing taste for wheat, which can easily be satisfied by exploiting the vast resources of**

**Manchuria.**

 **Wheat production in India and Pakistan totals 25 million tons a year, but both countries need to import additional supplies. The crop is grown in the cool season, with**

**6-Urban Observatories**

**If you stop in the aircraft cabin, it is amazing the number of gauges and meters and indicators that show the flight speed and the amount of fuel and equipment takeoff and landing etc., represents urban observatory with a difference cabin in command, monitoring and evaluation and the evaluation of urban development path geographical space appointed must be on development leaders Urban to have indicators necessary to maintain the trend of urbanization process about the best course of development, and always build on the participatory process between government agencies and the private sector and civil society organizations, and to use these indicators to effectively meet the needs of people of all classes and levels, and in order to reach sustainable development Idea observatories in 1976 began convening of the United Nations Development Programme World Conference on Human Settlements in Vancouver Habitat I), in 1995 was produced the first evidence of basic indicators by UNHABITAT and has 46 urban index produced which case the first global cities report in 1996, accelerated steps states after the implementation 0f the observatories concepts urban and production packages urban indicators to spread rapidly in more than 353 cities around the world, select the UN program in the city of Nairobi, Kenya the headquarters of the World Urban observatory**

 **Urban Observatory can be defined as "a specialized center" takes the form of a specialized department technically arise in the heart of the organizational structure for the management of the city. These technical management operations data collection and analysis, statistics and information in various fields of urban development, and operation and addressed to comply with the measurement and comparison and publishing, preservation and retrieval areas of .development of the city in order to work on improving the conditions of life for the residents of the city, which is the technical unit to transfer information to a set of indicators requirements Urban It indicators quantitative or qualitative measure urban phenomena concrete can be measured such as (school classes density the proportion of informal employment car ownership rate poor families ratios, etc.) are used these indicators in development policies, monitor and evaluate and draw plans that achieve the goals of development the city and its inhabitants, both the development of urbanization or the economy or the environment or the meeting, any comprehensive and sustainable urban development There are various benefits of urban observatories from merely providing information about the area of urban deve10pment, which suffers from many of the world's cities, where lack a lot of information about urban phenomena and problems of the citizens of the city, especially major cities and urban centers millions, and that inflation population even are suffering from the problems of the so-called excessive urbanization, where you also those observatories preparation and production of a range of indicators that show the degree of urban development and the performance of one or more economic, social and urban performance in a scientific way of the city, and that is the main objective of the Urban Observatory is monitoring the situation and shapes, styles and tempos and urban feed decision-making in urban development affairs of the information at the local level. The Urban Observatory measure of the effectiveness of performance and progress toward achieving the goals of urban development policies and the responsibility of doing the monitoring and evaluation processes, Urban Observatory and is a good tool in the hands of decision-makers where they can through indicators produced by standing on the extent of improvement or deterioration in the conditions of the city periodically, and comparison either over time or between the city and other cities with the same development or the same number of population stage.**

**Human Overpopulation-7**

**The number of the world's population in 100 AD about 150 million people, and in 1600 rose to 500 million people, and this age has accelerated significantly. In 1850 that number increased to up to one billion people. Currently, there are more than 6 billion of the populations on our planet.**

**Increasing population growth over the previous 150 years was not caused by increased reproduction, but also Increasing rates of ages because The availability of food in abundance and improved public health.**

**The birth rates and mortality in developed countries today are about equal, the population is slow or no growth, but it is thriving in some countries, such as Germany and Sweden in a marked decrease. In the countries of the developing world, the mortality rates declined significantly since the fifties of the twentieth century, thanks to the development of medical services and improve the welfare of children. The agricultural production has to keep up with population growth period. But the growing number of the population in some regions of the world, it was faster than that matched the production of food. In Kenya, for example, according to the current proportions of the population doubles every 17 years.**

**In many parts of the continent of Africa, children constitute 45% of the population.**

 **This variant of the population ratios in Europe and North America, where the proportion of the aging population is growing steadily.**

**Asia is the most populous among the continents of the world. Among the ten people of the world's population, six of whom live in Asia. Knowing that China and India alone has 40 % of these residents.**

 **At the beginning of the twentieth century atheist and the number of China's population of 1.3 billion people, followed by India's one billion people, and then the United States (276 million). Indonesia (209 million), Brazil (168 million). With the average woman gives birth in Europe, Japan or Australia, and one boy or two, the counterparts in Africa and Asia give birth to six or seven born.**

**Large The family is still the norm in many poor countries - where the infant mortality rate is high, and parents need to boys to do a job and contribute to the glory of maintenance at aging.**

**A significant proportion of women still find it difficult to get instructions to regulate the size of their families. Some countries have developed rigorous programs of birth control and to curb population growth. In China, the number of children identified with one per family. Strict family planning programs have made this China's population is growing slower than the population of India, where 30 children born per minute.**

**Experts say that the number of India's population will surpass China's population by the year 2015, and thus become India's most populous country in the world.**

**In conclusion, it will be in the future, population control, either through birth control and family planning and economic improvement - or as a result of hunger, disease and war, as happened several times throughout history.**

**8-Acid Rain**

**Acid rain is a rain droplets contaminated from the atmosphere as a result of the launch of sulfur dioxide and nitrogen by burning oil, coal, natural gas and factory chimneys and power plants, which is a recent phenomenon drawn attention these days after it caused a lot of damage to the various elements of the environment surrounding us Western society did not pay attention to the seriousness of the rain, but when he noticed a Swedish scientist in 1967 called "Svante Odin", a soil scientists that rain falling over some parts of Sweden increase the percentage of acidity with time, and have discovered this world that these precipitation produces soluble gases acidic by rising from the factory chimneys and alerted the world to the seriousness of this storm and to its devastating effects on the various elements of the natural environment balanced**

**The negative effects of acid rain on the environment: in lakes and oceans :**

**Acid rain affected the lakes environment, studies she stated that 15 thousand lakes out of 18 affected by acid rain, many died and decreased numbers of organisms that live in these lakes, especially fish and frogs.**

**In the forests and plants :**

**The destruction of forests has an impact on the ecosystem as well as acid rain affect of seasonal crops of economic plants in coniferous forests, they stripped**

**the trees of their leaves, and Spoke flaws in Alharda balance in the soil, and thus make the absorption disturbed in the roots, and the result lead to a significant loss of crops**

**other acid rain in the soil::**

**reports show that the soil in parts ofEurope, took affected by heartburn, became a hamper access to water within the soil and to the inability of the seeds from germinating, these effects have led to a decline in forest productivity**

**In animals .**

**It was also noted the death of crustaceans and small fish in acid lakes, due to the formation of toxic compounds that enter into the fabric of plants and plankton Plankton Phytoplankton single cell plants .tloating**

**In the human .**

**Lead to smog that hangs over the city, especially in the early morning hours formation, as causing congestion and mucous membrane irritation, coughing and choking and tissue damage and reduced the rate of photosynthesis in green plants**

**Treatment of the problem**

**1- equation acidic rivers, lakes and agricultural land alkaline materials**

**2-purify the pollutants before they spread in antenna cover**

**3- Work on creating a sophisticated system of environmental control and make way for the advanced technology that is compatible with the environment**

**4-need to include the economic feasibility of ecological processes**

**5-human awareness of the environment and lay the foundations for the process of exploitation of plant and animal resources**

**6-make accurate plans to protect the planet from an (sources of pollution (chemical thermal nuclear**

**7-reduce fuel consumption in transportation, and to**

**find alternative means do not leave negative impacts on the environment.**