

Chapter 05

RESOURCES OF PAKISTAN



1. Resources

There are two types of resources. One is the human resource, which means capacity and capability of human beings for doing certain works. The types of professions differentiate the human beings from each other. All these professions combined together are known as human resources. The other type of resource is the natural resource provided by the Nature. The natural resources are the source of production. The two categories of human and natural resources are mentioned as under:-

i. Human Resources

People engaged in so many occupations and tasks constitute human resources. These resources combine the capacity, capability, and expertise of the human beings working in different professions. These human resources are also called the manpower of a country. This manpower has been categorized in different employments. It may be noted that a person who is above 10 years of age and works for himself or performs duty for another for at least one hour a day is called an employed person. Pakistan's manpower is associated with different professions and occupations, like agriculture, mining, architecture, business, communication, government service and other types of paid work.

ii. Natural Resources

These are the resources which the Almighty Allah has given to different countries of the world in the form of soil, forest, mineral, water, etc. These resources are the free gift from Allah. Man can explore them and get benefit out of these natural resources."



Importance of Resources in National Development

Resources are important because:

- i) They are the real wealth of a nation. Those countries where human or natural resources are in plenty have shown tremendous progress and prosperity. However, progress and prosperity depends on the wise and appropriate utilization of these resources. There are a number of countries in the world where both human and natural resources are available but due to the lack of planning and hard work the benefits from these resources are quite meager.
- ii) Human and material resources help in building strong defence for the country. All material requirements for strong military build-up are provided through natural resources. Human resources help utilize these resources.
- iii) They are a source of high prestige for a country. For example, all western countries attract the people of developing countries to take advantage from the rich resources of the developed countries.
- iv) They help in meeting the material requirements of the country which include necessities, comforts and luxuries of life.
- v) They help in flourishing trade and business. Those countries which are rich in resources have captured the world trade. Their economy is strong.
- vi) They provide employment opportunities to the people. It is because of these resources that millions of people go to Gulf countries and Middle East countries for employment. Similarly, European countries, USA, Canada and Australia have the attraction for better employment opportunities.
- vii) They help in rapid progress and development of a country.
- viii) They provide people with ample food for living and other amenities of life. They help in building national institutions. They strengthen national unity and individual character. They help in developing virtues like honesty, truthfulness and generosity. The obvious reason is that people of developed countries have no fear of losing livelihood or facing financial set-back.

2. Natural Resources

Pakistan is a gift of Allah with plenty of natural resources. These natural resources are as under:

A. Soil

Soil has been named as part of unconsolidated material which covers the surface of earth and becomes a source for growth of plants. Generally soil is a compound of salt, silt and clay. The soil of Pakistan differs from area to area. Generally soil in Pakistan is of red, white and black colours. The particles present in the soil determine its colour. For example, presence of iron particles in the soil makes its colour red. There are three layers of soil. The upper layer helps growing vegetation and plants. The soil created as a result of erosion of rocks and climatic changes is called local soil. The third soil is called the transferred soil because it changes the place due to natural consequences. There is a variety of soil in different parts of Pakistan. The following kinds of soil are found in different parts of Pakistan:-

i. Indus Basin Soils

The Indus Basin soils are created by depositing the alluvium by the river Indus and are generally called Indus Basin Soils. These can further be divided into three major groups. First group is known as Bangar Soil of alluvium which is very productive when irrigated and fertilized. This soil covers a vast area in the Indus plain, including most of the area of the Punjab, Peshawar, Mardan, Bannu and the greater part of the Indus Plain. The second group is called Khaddar Soil and is formed from the flooded layers of silt, loam and silty clay loam. Such type of soil is commonly found in Mardan and Bahawalpur. This soil is very fruitful for agriculture products when plenty of water is added into it. The third group of soil is Indus Delta Soil covering the whole of Indus Delta from south of Hyderabad to the Arabian Sea coast. Before becoming part of the sea, Indus River is distributed here into a number of branches. About one third of the area is covered by clay soil which is developed under flooded water conditions. This soil is used for the cultivation of rice.



ii. Mountain Soils

North and North Western Mountain's Soil are brown. These soils are residual as well as transported under arid and semi-arid conditions. In the mountain valleys, soil is formed from the alluvial deposits of the streams. These soils are calcareous silt loam and sandy loams of organic content. In the sub-mountain area of Potwar. Plateau shallow residual soils are found. These soils become productive with plenty of water. The lowest part of the inter-mountain valleys and interior basins are arid or semi-arid regions. The soils of these areas are saline. The colour of soil is reddish. Most part of this soil is barren.

iii. Sandy Desert Soils

Sandy Desert Soils extend over some areas of Western Balochistan, Cholistan and Thar Desert. These soils are of yellow colour, which contain phosphate, iron, lime and potash. These are essential for the fertility of land.

B. Forests

Forests are an integral part of a country's economy. For balanced economy of a country about 25% of its land should be under forests. Forests are great source of natural resources. In Pakistan only 4.8% land is under forests. Provincial distribution in Pakistan indicates 2.7% land under forests in Punjab, 4.2% in Sindh, 15.6% in Khyber Pakhtunkhwa, and 2.1% in Balochistan.

The climate of Pakistan is too dry for growing forests except in the northern hilly area and sub-mountain hills, where forests are due to sufficient rainfall and hill slopes. In Pakistan the forest area is being reduced due to ruthless cutting of forests, use of land for construction of houses and due to rivers erosion each year. It is necessary that more land is put under forests and un-necessary wood cutting is stopped.

Area wise and on the basis of climate, forests in Pakistan are divided into six kinds. They are:

- i. Mountainous Forests:** These forests are found in North and North Western Mountain area. These areas include Swat, Dir, Chitral, Abbottabad, Murree and Mansehra. These are evergreen coniferous soft wood forests because annual rainfall in these areas is more than 100 centimeters. The principal coniferous trees include fir, deodar, blue pine and spruce. They grow generally on a height 1000 to 4000 meters above the sea level. Below 1000 meters height grow trees like oak, maple, birch, walnut, chestnut, mulberry, apple and other fruit trees. These trees are a good source of timber and fruits.

- ii. **Sub-mountainous Forests:** These forests grow at a height of 1000 meters above the sea level. These are found in Kohat, Mardan, Rawalpindi, Attock, Gujrat and Jhelum districts. The most popular trees include phulahi, kahu, jand, shisham, poplar and blackberry. These are hard wood trees and used for fire and for construction work.
- iii. **Dry Western Mountainous Forests:** The trees like chilghoza, pine and juniper grow at high altitude. In other areas, only trees and small thorny bushes grow in Quetta, Kalat, Zhob and Ziarat.
- iv. **Riverine Forests:** These forests grow along the rivers. Trees like shisham, acacia and mulberry are found in these forests. These forests are also found in the canal areas of Punjab and Sindh.
- v. **Canal Forests:** These forests have been planted where canal water is available in abundance. These areas are Chhanga Manga, Chichawatni, Khanewal, Thal, Shorekot, Bahawalpur, Sukkur, Taunsa, Guddu and Kotri. The most popular trees in these forests are shisham, mulberry and eucalyptus.
- vi. **Coastal Forests:** In the South of Sindh near the coast of Arabian Sea, there are some Mangrove forests. The Mangrove forests are breeding grounds for fish and shrimps.



Advantages of Forests

Following are the advantages of forests:

- i. The forests are one of the important resources for the country and meet a number of requirements like wood, timber, herbs etc.
- ii. The forests help in reducing water logging and salinity and help in restoring fertility of the land.
- iii. The forests moderate the temperature and make the weather pleasant.
- iv. The forests provide herbs which are used in the preparation of medicines.
- v. The forests are the source of wild life. A number of wild animals like lion, leopard, bear, etc., are found in the forests.
- vi. The forests are the main source of firewood.
- vii. The forests add to the beauty of landscape.
- viii. The forests provide a number of resources. For example, the wood from the forest is used for making furniture, paper, matchsticks, sports goods etc.
- ix. The forests protect both human beings and natural vegetation from the onslaught of violent windstorms.
- x. The forests stop quick melting of snow on the mountains. They check soil erosion.
- xi. The forests do not allow the excess of carbon dioxide gas in the atmosphere because they need this gas to take it and release oxygen, necessary for human life.
- xii. The forests are the natural pastures. Animals like goats, sheep and camel get their food from forests.
- xiii. The forests serve as excursion resorts and provide recreation for the people.
- xiv. The forests are the source of growth and breeding of different kinds of animals and birds.



C. Minerals

Minerals are the natural wealth buried underneath the earth. Almighty Allah has given lot of mineral wealth to Pakistan. These mineral resources are playing a vital role in the rapid economic and industrial progress of the country. Following are the important mineral resources of Pakistan:

i. Mineral Oil

Mineral oil is an important wealth of the modern age. It is a source of generating energy. Mineral oil is found in raw condition which is refined in the oil refineries to get petrol and other by-products like kerosene oil, diesel, plastic, candle, baseline etc.

Pakistan produces about 20% oil of the total requirements of the country. The remaining 85% requirement is met from the import of oil from other countries.

The oil resources of Pakistan are located in Potwar Plateau, Khor, Dhullian, Kot Mayyal, Sarang in Attock district, Balkasar in Chakwal district, and Joyamir in district Jhelum, Dhodhak in Dera Ghazi Khan. In Sindh, oil has been discovered at Badin, Hyderabad, Sanghar, Dadu, Jamshoro, Tande Mohd Khan, Tando Allayar, Matiari, Khairpur, Kashmore, and Ghotki districts.

Oil and Gas Development Corporation (OGDC) is responsible for the exploration of oil in the country. It is continuing its efforts to find more oil resources.



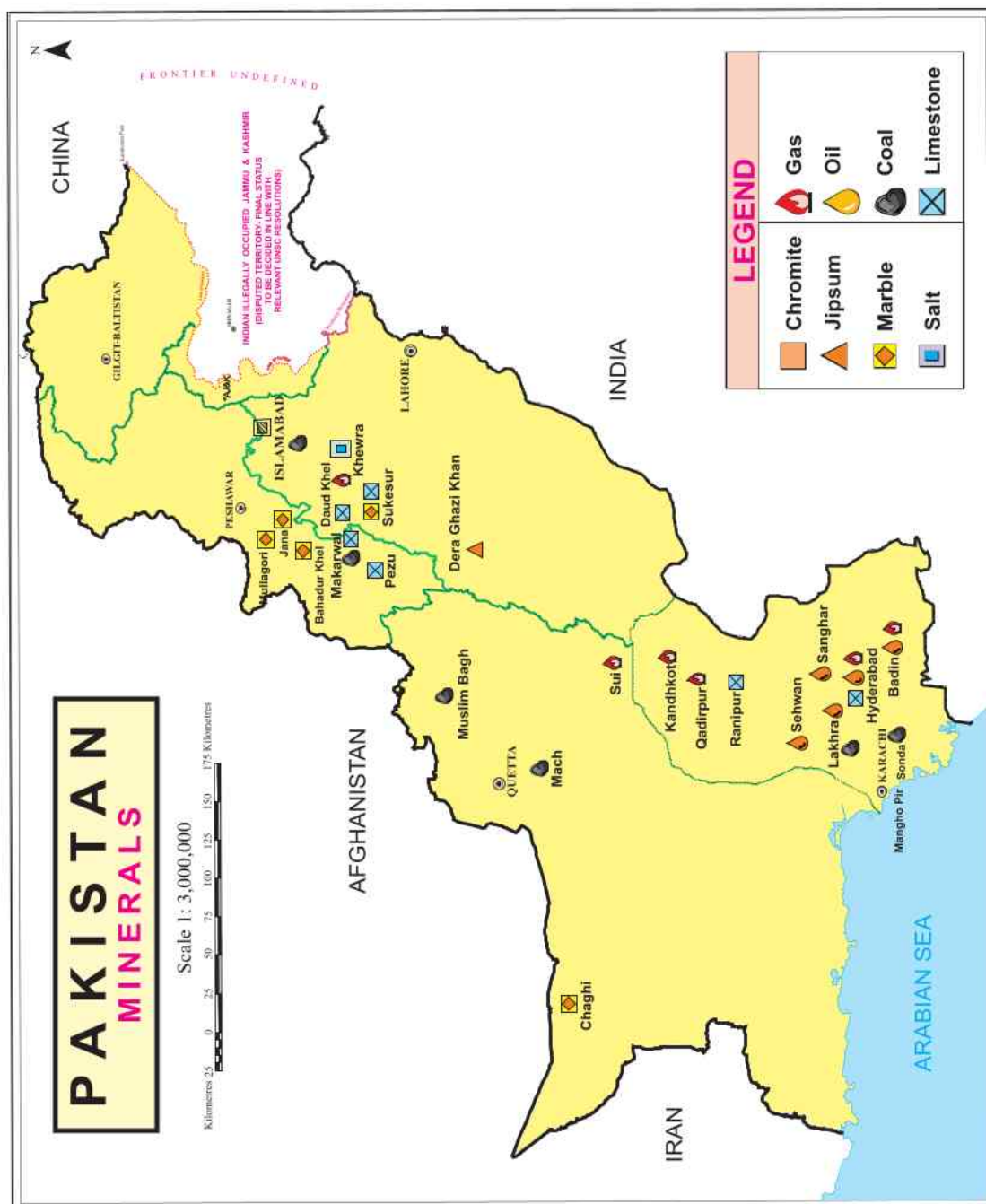
ii. Natural Gas

Natural gas is required for running industry and is used as fuel for the vehicles and household purposes. Its use has become common because it is cheaper than the petrol. About 35% of our energy needs are met out of natural gas. Pakistan has vast reserves of gas. Natural gas was first discovered at a place called Sui near Dera Bugti in Balochistan in 1952. Afterwards, this gas was discovered at thirteen different places in the Lower Indus Valley and Potwar. The most important places for gas reserves are Sui, Uch, Zin (Balochistan), Haripur, Mazrani, Seri, Hundi, Kandhkot, (Sindh), Dhodhak, Pir Koh, Dhullian and Mayyal (Punjab). Natural gas has been brought to different big cities through pipelines. The gas is used in cement, fertilizer and general industries. It is also used for producing thermal electricity.

iii. Coal

Coal is found at a number of places in Pakistan but neither it is of good quality nor it meets the total requirements of the country. Pakistan produces about 65% of coal requirement of the country. In Punjab, the coal mines are at Dandot, Makkarwal and Pidh. The coal mines of Makkarwal in Mianwali district are the biggest coal mines in the country. In Balochistan, coal has been discovered at Sharag, Khost, Hamai, Sar,





Degari, Shirin and Mach. Coal mines In Sindh, coal mines are at Jhimpir in Thatta and Lakhra in Jamshoro district. Coal has also been discovered in Tharparkar district (Sindh) in a vast quantity.

iv. Iron ore

Iron ore is very important mineral. It is used for making iron, steel, machines and tools of different kinds. The largest deposits of iron ore have been discovered in the Kala Bagh area. Other deposits are found in Langrial, 32 km south of Abbottabad in Hazara district and Chitral. In Balochistan Iron Ore is found at Khuzdar, Chilghazi and Muslim Bagh. The iron found in Pakistan is not of good quality and it meets only 16% of the total requirement of the country. Pakistan Steel Mill is using imported iron ore.

v. Chromite

It is a white colour metal used for making steel, aeroplanes dyes and photography items. Pakistan has the largest reserves of chromite in the world. Most of which is exported to earn foreign exchange. Its deposits are found in Muslim Bagh, Chaghai, Kharan (Balochistan), Malakand, Mohmand Agency and North Waziristan (Khyber Pakhtunkhwa and FATA).

vi. Copper

Copper is used for making electrical goods. Electric wire is made out of copper. Balochistan has rich reserves of copper. The copper deposits are at Saindak in Chaghai district of Balochistan.

vii. Gypsum

It is a white colour shining stone. It is used in the production of cement, chemical fertilizers, plaster of Paris and bleaching powder. The gypsum is obtained from the districts of Jhelum, Mianwali, Dera Ghazi Khan (Punjab), Kohat Khyber Pakhtunkhwa, Rohri (Sindh) and Quetta, Sibi, Loralai (Balochistan).

viii. Salt

Pakistan has the largest reserves of mineral salt in the world. The salt range is located in the south of Potwar Plateau. This salt is of fine quality. The biggest salt mine is in Khewra (Jhelum district). Salt is also obtained from Warchha (Khushab district), Kala Bagh (Mianwali district) and Bahadur Khel (Karak district). In the Mauripur area near Karachi and the Makran coast salt is also obtained from sea water.



ix. Limestone

It is mostly used for making cement. When it is burnt, lime is obtained which is used for white washing the houses. It is also used in glass, soap, paper and dye industries. Vast limestone deposits are found in Dandot (Jhelum district), Zinda Pir (Dera Ghazi Khan), Moghul Kot and Ganja Takkar near Hyderabad, Manghopir, Kot Diji and Ranipur (Sindh).

x. Marble

Marble of different kinds and of different colours is found in abundance in Pakistan. It is found in the districts of Chaghai, Mardan, Swat and Khyber Agency. It is considered to be of the best quality in the world due to its softness, beauty and colour. Black and white marble is found in the Kala Chitta Hills in Attock district. Pakistan's marble industry is earning huge foreign exchange for the country through export of things made of marble.



3. Agriculture

The upper and lower Indus plains have been the centers of human civilization and culture since olden times due to their fertility. Many kinds of crops, fruits and vegetables are grown in these areas. Agriculture sector produces about 30% of the total raw materials and is a source of providing employment to about 55% of population. Earning from agriculture export is 70%. Pakistan is self-sufficient in the production of wheat, rice, cotton and sugar.

A) System of Agriculture

Pakistan grows two major crops during the year. The crop grown in October and November is called Rabi crop. It is harvested in the month of



April and May. Wheat, barley, gram and oilseeds are Rabi crops. The second crop is known as Kharif crop. It is grown in the month of May/June and harvested in September and October. Kharif crops are rice, maize, cotton, sugarcane, sorghum jowar) and millet (bajra). These two types of crops are further divided into two kinds. One kind is called food crops, which are wheat, rice, pulses, maize etc. The other kind is called cash crops, which are a big source of earning foreign exchange by selling them into international markets. These crops are cotton, sugar, tobacco etc.

Agriculture occupies an important place in our economic system. Pakistan's economic system is very much linked with agriculture. The main purpose of our economic policy is to make the country self-sufficient in food and other agricultural products. Therefore, all efforts are directed towards attaining self-sufficiency in food. This will help in saving foreign exchange spent on the import of food grains and oilseeds.

Pakistan is following feudal system. The agriculture sector is dominated by the feudal lords who have vast areas of land. The land is thus cultivated through the peasant system. In order to remove the defects of agriculture, several agricultural reforms have been made. Through these reforms millions of acres of land were acquired from the landlords and sole to tenants to intensify the use of this land. Efforts were made to strengthen better relations between the landlords and tenants and protect the rights of both the parties. To promote mechanized farming small scattered pieces of land were joined together. Loans are granted to cultivators for purchasing modern agricultural equipment's, fertilizers, seeds and pesticides.

Agriculture Products

The crops of Rabi and Kharif are divided into two parts, namely, cash crops and food crops.

Cash Crops

These crops are the main source of earning foreign exchange. These are:

a. Cotton

It is the most important cash crop of Pakistan and a source of uplifting economy of the country. Cotton is called the silver fiber of





Pakistan. Cotton is mainly sown in Punjab and Sindh Province. In Balochistan and Khyber Pakhtunkhwa cotton is sown on a limited scale in a few areas. Two types of cotton are sown in Pakistan one is indigenous and the other is American Cotton. The American cotton has long staple and more attention is given to its cultivation. Due to plenty of cotton produce a number of textile mills have been established in the country. These textile mills produce a variety of fine cotton cloth, cotton yarn and other cotton-based products.

b. Sugarcane

It is also an important cash crop, which is sown in all the four provinces of Pakistan but the main areas of its production are the province of Punjab, Sindh and Khyber Pakhtunkhwa. Sugarcane is the source of producing sugar. Its residue is used for making paper. Pakistan produces surplus sugar, which is exported to earn valuable foreign exchange.

c. Tobacco

It is another cash crop of Pakistan. Tobacco is mainly produced in the Khyber Pakhtunkhwa, especially in the Peshawar and Mardan districts. It is used for preparing cigarettes. It is also used in cigars. A few big cigarette manufacturing factories are working in the country. Tobacco and its products are also exported to other countries.

d. Oil seeds

A variety of oilseeds are produced in Pakistan. The cotton seed, which is the by-product of cotton, is the most important seed. Other oilseeds are rapeseeds, mustard, groundnuts, sesame (sesamum indicum), Lin seed and sunflower. Most of these seeds are produced in the irrigated lands. Our vegetable oil industry is the user of these seeds. But production of oil seeds has not matched with the needs of the country which are imported from other countries.



Food Crops

These are the crops which are a source of providing food for the people. These food crops are as under:

a. **Wheat**

It is the staple food grain of Pakistan. Flour is the main by-product of wheat. Bread and other food items are prepared from flour. Three-fourth (3/4) of the total production of wheat is received from the Province of Punjab. After Punjab the province of Sindh produces plenty of wheat. Balochistan and Khyber Pakhtunkhwa are also producer of wheat but their yield is not as substantial as that of the Punjab and Sindh. Pakistan's self-sufficiency in wheat depends on the quantity of water. When nature is benign we produce surplus wheat. Sometimes wheat is imported from other countries. In the year (2004) a large quantity of wheat was imported from other countries. Wheat is an important element of our daily food.

b. **Rice**

It is the second most important cereal of Pakistan. Pakistan is self-sufficient in the production of fine quality rice (Basmati), which is also exported to other countries. Rice is grown in the canal areas of Punjab and Sindh because lot of water is required for its growth. Gujranwala, Sialkot, Sheikhupura, Sargodha and Sahiwal are very important for rice production. In Sindh, Sukkur, Shikarpur, Larkana and Dadu districts are famous for rice production. Rice is an important food item of the people of Punjab and Sindh. Rice is also grown in a few areas of Khyber Pakhtunkhwa.

c. **Maize (Corn)**

It is a food crop but is also used as animal fodder. It is mostly grown in the Khyber Pakhtunkhwa, where Mardan, Abbottabad, Mansehra, Swat and Peshawar are noteworthy. In the Punjab, Faisalabad and Sahiwal districts are known for maize cultivation.



d. Sorghum and Millets (Jowar and Bajra)

Sorghum and Millets are cultivated to yield food grains and also for green or dried grass to feed mainly milk cattle. These are winter (Kharif) crops, which can be cultivated, even in the areas where soil is poor and prone to drought. Its cultivation is confined to Punjab and Sindh provinces. In the Punjab; Attock, Gujrat, Sialkot and Sargodha districts grow millet. Tharparkar, Umerkot and Mirpurkhas districts in Sindh lead Pakistan in the production of millet. Sorghum is also cultivated in the Northern districts of Punjab i.e. Attock, Rawalpindi, Jhelum and Sargodha. In Sindh, Sukkur, Khairpur, Nawabshah, Naushahro Feroze, Sanghar and Dadu districts are the main areas of its cultivation.

e. Pulses

Different varieties of pulses are also cultivated in the country. The gram leads the list of pulses. The rain-fed (Barani) areas of Mianwali and Sargodha are its important centres. In the Khyber Pakhtunkhwa gram is grown in good quantity in Bannu and Dera Ismail Khan Districts. Other varieties of pulses such as Lathyrus (Moong), Lentils (Masoor) and Vetchling (Mash or Urad) are grown more in Punjab than in other parts of the country.

f. Barley

It is not grown in large areas. It is grown on a limited scale in less fertile and dry areas of the country. It is normally used by poor families. It is also used as fodder for animals. It is not popular in the country.

g. Vegetable and Fruits

Vegetables are grown locally according to the needs of the area all over the country. The important vegetables are potato, pumpkin, tomato, ladyfinger, brinjal, spinach, onion, radish, pea, sugar beer, cabbage, carrot etc. Pakistan is self-sufficient in the production of vegetables. Pakistan exports onion and potatoes to other countries.



Pakistan produces a great variety of delicious fruits. But these are grown in specific areas due to variation in climatic conditions; Balochistan and Khyber Pakhtunkhwa are the major fruit producing areas. These fruits include grapes, apple, pomegranates, plum, apricot, pears and cherry. In Sindh, few varieties of fruits like mango, dates, banana, watermelon and melon are produced. In the Punjab, mangoes, oranges, kino, musk melon, water melon and dates are grown. Dry fruits like almond, pistachio and walnut are grown in Balochistan and Khyber Pakhtunkhwa. Pakistan earns lot of foreign exchange by exporting fresh as well as dry fruits.

Agricultural Problems of Pakistan

Agriculture is the main occupation of the people of Pakistan. More than 70% of the people are involved in agriculture. In spite of the fact that a large number of cash crops and food crops are grown; the agricultural yield rate is very low. The reasons for this low production are as under:-

a. Low literacy rate

Literacy rate of the country is quite low. Majority of our farmers are not educated and do not have knowledge about the modern farming. They have little knowledge about the use of insecticides, selection of good quality seeds and proper use of fertilizer, with the result that their production per acre is far below the requirements of the country. They only believe inland use the traditional methods of cultivation which they learnt from their elders with the result that they get low yield from their land.

b. Increasing number of farmers

The number of people who depend on agriculture is increasing but the process of bringing more area under cultivation, is quite slow. This has resulted in decrease in per capita area under cultivation.

c. Non-mechanized cultivation

Our farmers are still using old wooden plough, animal dung fertilizers, uncertified local seeds and old methods of cultivation. This is the reason that per acre yield is not increasing inspite of the fact that our



farmers are hardworking and laborious. Mechanized cultivation is not followed. Tractor, tube well, natural fertilizer, certified quality seeds and disciplined sowing of seeds are the necessary elements of mechanized cultivation. Our farmer is hesitant to adopt mechanized farming either due to conservative ideas or due to lack of financial resources as also due to the small land holdings.

d. Limit of agricultural Land

Agricultural land of Pakistan is divided into two groups. The landlord group has vast areas of land but they do not cultivate themselves, hence vast areas of land remain uncultivated and barren. The second group has canal-irrigated areas of land which is not more than 12-15 acres per family/person. They cannot take on mechanized farming on small areas. Without mechanized farming production will be low. They divert their attention to other jobs. This results in low production.

e. Role of Agriculture Department

Role of Agriculture Department is not much effective because our farmers do not have faith in the advice of Agriculture Department. The farmers believe in their old methods and the experiences gained from their forefathers. On the other hand the staff of agriculture department is also lacking in performing an effective role. Absenteeism from duty, non-supply of advice at an appropriate time and laxity in educating the farmers are the reasons for the non-co-operation between the farmers and the department. As a result agricultural output suffers.

f. Soil erosion

Soil erosion is caused by rains and other natural agents, like wind storm, snowfall and earthquakes. They remove away fertile upper crust particles of earth. The result is low yield.



g. Water logging and salinity

Large canal areas in the province of Punjab and Sindh have been rendered useless due to waterlogging and salinity. The loss of fertile land causes serious setback to the fertility of the land under cultivation.

h. Fragmentation of landholdings

As a result of fragmentation, the fertile land is divided into small land holdings which restrict large scale production and better use of the land including mechanized farming and the use of modern equipment.

i. Insufficient means of transport

Villages are the main areas of agricultural production. But metalled roads are either not available or are in a bad shape, causing obstacle in quick transportation. A good quantity of production does not reach safely to the market. Farmers, therefore, contend themselves with small production of crops.

j. Difficulties in the marketing of crops

The farmers do not get full or proper price for their products due to different tactics and difficulties created by the middlemen or those who have influence over the marketing process. This makes the farmers disappointed who pay little attention to increase the production.

k. Unsuitable conditions

Due to the unsuitable living conditions in the countryside and non-availability of essential medical facilities, health of farmers and their families is affected. Their strength for more production is minimized. This also affects the production of crops.

Measures to solve Agriculture Problems

The government of Pakistan has taken a number of steps to solve the agriculture problems in the country. These steps are as under:



a. Educational facilities

Government has extended educational facilities to the farmers through agriculture department in the use of modern scientific methods of cultivation. An overall programme of adult education has been started in the rural areas. Radio and television broadcast and telecast programmes on agriculture are to educate the farmers about modern methods of cultivation. Pamphlets and leaflets have been published for creating awareness among the farmers about modern cultivation.

b. Provision of soft loans

The government has started schemes for soft-term loan facilities to the farmers for purchasing modern agriculture equipment, fertilizers, high yield variety seeds and insecticides. Loan for purchasing tractors and installation of tube wells are also provided. These loans are recovered in easy installments.

c. Means of Irrigation

Artificial means of irrigation are being made more effective for providing proper and timely water supply to the fields. Arrangements to eliminate waterlogging and salinity have been made. Such trees are being planted which have long roots and help in eliminating this disease. The canals and the water courses are being lined.

d. Introduction of Agriculture Vocations

In order to reduce pressure of population on the area under cultivation, a number of vocations related to agriculture are being promoted to associate people with these professions. These supplementary professions also provide an opportunity to the farmers to earn extra money through profitable use of their spare time.



e. Land Reforms

The government introduced land reforms in 1959, 1972 and 1977. Under these reforms the government fixed a ceiling on land-holdings of big landlords and distributed the surplus land among the landless farmers. The objectives of land reforms were to improve relations between the tenants and the land-owners, abolish the monopoly of big landlords and develop the system of agricultural productivity. But still there is a need to make more reforms so that uncultivated land is made productive."

f. Agriculture Institutions

Government has set up agriculture institutions such as Agriculture Universities and the Colleges in the country. These institutions are providing education in different subjects of agriculture and are producing graduates in Agriculture Science. The government has established agricultural institutions like:-

- i. Agriculture University, Peshawar.
- ii. Arid Agriculture University, Rawalpindi.
- iii. Agriculture University, Faisalabad.
- iv. Agriculture University, Bahawalpur.
- v. Agriculture University, Tando Jam.
- vi. Agriculture College, Multan.
- vii. Agriculture Institute, Dokri, (Larkana).

The Agriculture Research Institutes in the country are engaged in finding the ways and means to increase agricultural production, develop high quality seeds and discover innovative methods to control plant diseases.

B) Irrigation

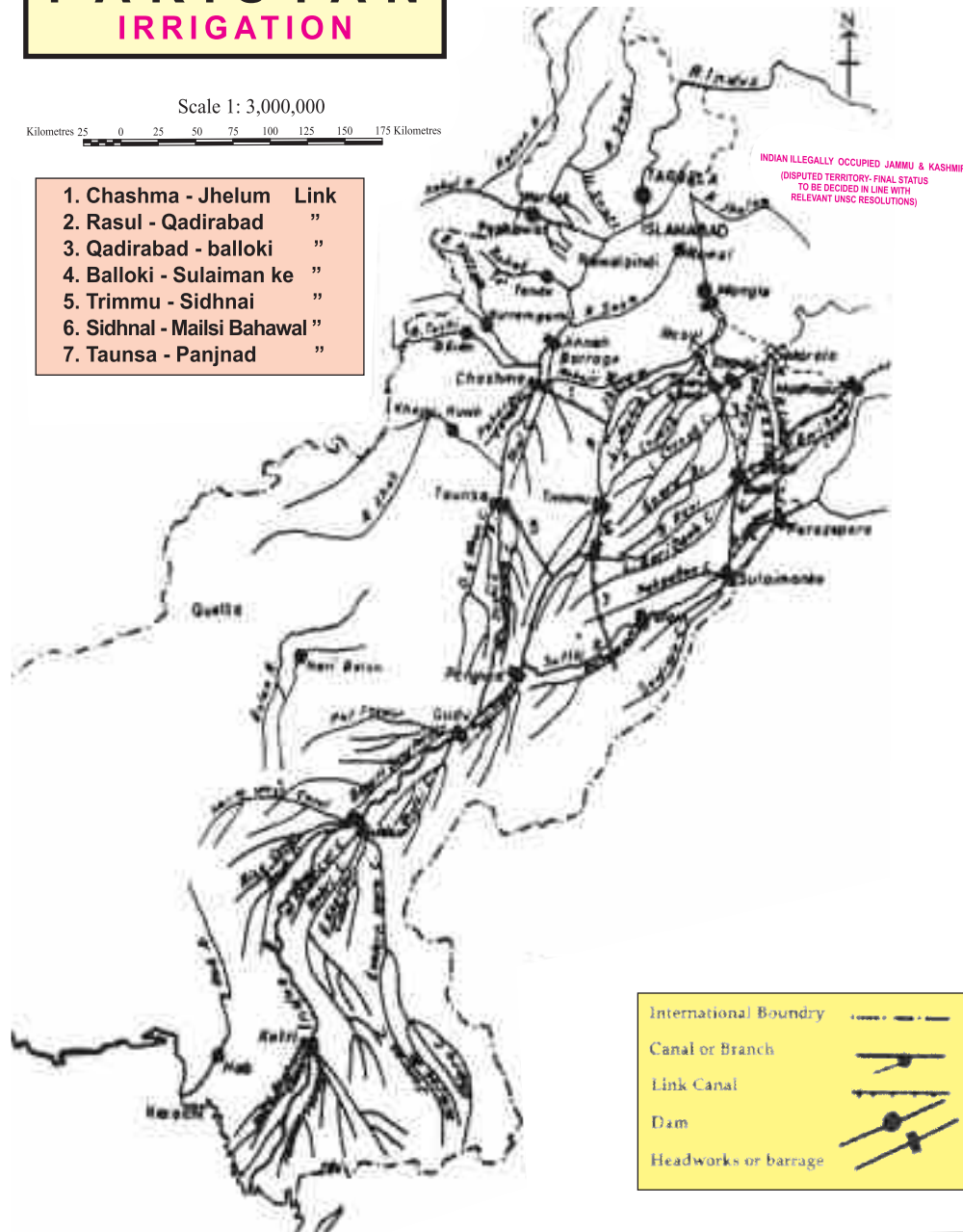
Pakistan is basically an agricultural country. Its 73% area is under cultivation which depends on irrigation through canals and other sources like tube wells, wells and Karez. In most parts of Pakistan annual rainfall is about 250 mm which is very low and of uncertain. Pakistan has the biggest canal system in the world. There is a wide spread network of canals in Punjab and Sindh through

PAKISTAN IRRIGATION

Scale 1: 3,000,000

Kilometres 25 0 25 50 75 100 125 150 175 Kilometres

- | | |
|-----------------------------|------|
| 1. Chashma - Jhelum | Link |
| 2. Rasul - Qadirabad | " |
| 3. Qadirabad - Balloki | " |
| 4. Balloki - Sulaiman ke | " |
| 5. Trimmu - Sidhnai | " |
| 6. Sidhnai - Mailsi Bahawal | " |
| 7. Taunsa - Panjnad | " |



head works, barrages and dams. There are few canals in Balochistan because there is no big river and the land surface is uneven. The Pat Feeder Canal takes its water from the Indus (in Sindh). The lands are irrigated by Karez also.

Canals are the important source of irrigation. River water is provided to distant areas through these canals to increase and sustain agriculture production. Pakistan has the largest system of canal-irrigation in the world. There are two types of canals. Perennial canals flow throughout the year and, the non-perennial canals flow only during the rainy season or at the time of floods. The number of non-perennial canals is very small. There are 18 head works and barrages and 38 big canals in Pakistan. There are two large and a few small dams in Pakistan. The Mangla Dam on Jhelum River and Tarbela Dam on the Indus River are the two large-sized dams.

Source of Canal System of Pakistan

As a result of the partition of sub-continent, the province of Punjab was also divided into East and West Punjab. East Punjab went to India. The partition of Punjab led to the partition of the canal system of undivided Punjab. The head works of the Sutlej and the Ravi canals were in India. Some parts of Pakistan were irrigated by these canals. India stopped water of these canals. This created water dispute between India and Pakistan. In order to find out a permanent solution, World Bank in September 1960 engineered an agreement between the two countries. The agreement is known as 'Indus Basin Treaty'. The main features of this treaty are as under:-

- a. India got the rights of three Eastern rivers namely Ravi, Beas and Sutlej.
- b. Pakistan got exclusive rights of three Western rivers, namely, Indus, Jhelum and Chenab.
- c. Pakistan received water through the link canals into the canals coming out of the rivers, Sutlej and Ravi.
- d. Pakistan would construct two storage dams, five barrages and eight link canals to meet shortage of water due to loss of three eastern rivers which went to India.

Under this agreement, Mangla Dam and Tarbela Dam were constructed. These dams are the source of providing water to canals. The old canals were widened and barrages were expanded.

Now, there are 4 famous Dams in Pakistan namely Mangla Dam, Tarbela Dam, Warsak Dam and Ghazi Barotha Dam. The number of headworks is increased to 18 and that of big canals to 38.

C) Livestock

Livestock is an important section of agriculture in Pakistan, which accounts for 37.5% of the value of agriculture sector and contributes about 10% to the national output of Pakistan. It is a source of foreign exchange earning for Pakistan. Livestock includes cattle, buffaloes, sheep, goats, camels, horses, donkeys, mules and poultry. The livestock products are milk, beef, mutton, poultry meat, wool, hair, fats, blood, hides, skins, etc. Fish farms are also source of livestock. Some of the livestock like camels, horses, donkeys and mules are also used for transport, travel and for tilling the land.

In different parts of Pakistan, breeding of cattle is done on commercial basis. Dairy farms have been established in Punjab and Sindh. The Government has established cattle farms in Sindh at Malir; Mirpurkhas, Sakrand, Dadu and Tando Muhammad Khan. In Punjab, cattle farms have been established at Bahawalpur, Vehari, Khanewal, Dera Ghazi Khan and Sahiwal.

Fish farms are also gaining importance and a number of fish farms have been set up in Punjab, Sindh and Khyber Pakhtunkhwa. About 2 lac people are engaged in the fishing profession. Poultry is a big industry and has flourished throughout Pakistan. In Balochistan and Cholisthan where rainfall is scanty rearing is common. Pakistan is among those countries where conditions of livestock preservation are not satisfactory. The main reasons are traditional methods of livestock rearing, lack of sufficient veterinary hospitals and shortage of trained staff in these hospitals. With proper planning, Pakistan can earn valuable foreign exchange from the export of livestock and poultry products.

4. Power Resources

Power resources include coal, mineral oil, natural gas, nuclear energy, wind power and solar energy. These resources are:

a. Hydro and Thermo Electricity (Hydel and Thermal Electricity)

Thermal and hydel (water) energy is commonly used in our country.

Electricity is generated through Thermal and hydro resources. Coal, oil and gas are used to produce thermal electricity. But we cannot depend upon these resources because in Pakistan coal, oil and gas deposits are limited. Thermal power station can be set up easily but its generation cost is very high. Therefore, it is an expensive venture. However, a thermal power station is being established near coal mines of Tharparkar. At present about 58% electricity is obtained through thermal resources. The thermal power houses have been set up at Faisalabad, Multan, Kot Addu, Rohri, Jamshoro, Hyderabad and Karachi.

The hydro-electricity is produced through water of the rivers. The hydro-electricity projects are located at Tarbela, Mangla, Warsak and Ghazi Brotha. About 42% of the electricity is produced through water resources. Although establishment of hydro-electric stations is an expensive business but its cost of production of electricity is quite less than the cost of thermal electricity. After the electricity is produced from the water of the rivers the water can again be used for irrigation. Hydro electricity generation does not create air pollution.

b. Atomic or Nuclear Energy

Another source of energy is atomic power or nuclear energy. Uranium, which is a heavy grey radioactive metallic element (symbol U), is used for the production of atomic energy. In Pakistan two atomic power houses are working. One is at Karachi, which started its work in 1971 and the second is at Chashma (Mianwali). The Chashma plant started producing electricity in 2002. Its production capacity is 300 MW. A third atomic power project is being constructed again at Chashma with the collaboration of China. Atomic power stations are preferred because they supply cheap electricity to consumers. Atomic energy is also used for peaceful purposes. For example, it is used for agricultural research. In this regard three centers at Faisalabad (Punjab), Peshawar Khyber Pakhtunkhwa and Tando jam (Sindh) have been set up for agriculture and food research besides the National Institute of Food and Agriculture (NIFA). Atomic energy is used for the treatment of cancer. Such institutes have been set up at Peshawar, Lahore, Karachi, Jamshoro, Larkana, Multan, Bahawalpur, Islamabad, Quetta, Faisalabad and Abbottabad.

c. Solar Energy

Coal, oil and gas are non-renewable deposits and are likely to be consumed relatively quickly due to their excessive use. But solar energy is such a treasure which cannot be consumed. It is almost free. About 200 million MW solar energy is received each day throughout the world from the sun. It is about

60, 000 times the total productive capacity of all the power houses in the world. Solar energy is obtained through a number of methods. It is stored in the solar cells and used in radio and small vehicles. By using big size mirrors in the solar boiler, rays of the sun are diverted towards the boiler; energy is produced and used in operating big machines. The solar panels seek heat from the sun. In Pakistan sun shines quite brightly for about 300 days in a year. The sun-light can be used for producing electricity in the rural areas for cooking food, running the tube wells and for obtaining the heat.

Presently, it is too expensive to set up a solar power house in Pakistan. Also, technical expertise is not available. However, a few small solar energy units are working at the following places:

- i. Khurkhira (Lasbela, Balochistan)
- ii. Malmari (Thatta, Sindh)
- iii. Dittal Khan Laghari (Tharparkar, Sindh)
- iv. Hoot (Multan)
- v. Nasirabad (Gilgit)

Presently, solar energy sector has not been given much attention because electricity needs are being met through other sources.



5. Human Resources

Pakistan ranks fifth among the most populous countries of the world. It is the second populous country in the Muslim World. When Pakistan came into being its population was about 33 million. Now, it has reached about 200 million. It has been estimated that less than 30% population of Pakistan is involved in active work. Out of this estimated figure 40% are associated with agriculture, 18% with industries and 40% are employed in other sectors. Out of this population, rural and urban ratio is 66.5% and 33.5% respectively. This working population is indeed the human resource of Pakistan. The economic, social and political advancement of the country depends upon the human resource.

Human resource is an important factor for development, but the more important is the physical health, mental health, education and skillfulness of this human resource which determines its utility and effectiveness. The effectiveness and productivity of human resource in Japan can be visualized that its human resource is 100 million but their total production is 5 times bigger than the total population of all the Muslim countries, which is 1000 million. In spite of the rich resources of Muslim countries their total national production is 1200 billion dollars

whereas Japan's production is 5500 billion dollars annually. Japan has no oil, gas or coal deposits. But, it has the high level of education and development in science and technology. The hard work of the people has made it a Prosperous country. On the contrary, Muslim countries pay little attention to the development of their human resource. In Pakistan, feudal rulers did not pay attention to raise the standard of human resource in the country by providing funds in education, science and technology sector. It is a recognized fact that development of human resource is the best investment Government of Pakistan has now started paying attention to science and technical education. Science and technical institutions are being set up. Their budget has been raised almost 5 times as compared to the past. It is around 5 billion rupees.

Interdependence of human and other resources

Human resource and other resources have their independent and separate value as well as utility. But these resources are interdependent. Human beings have a number of needs for living, which include necessities of life like food, clothing and shelter. Similarly, some comforts and luxuries are part of human needs but rank after the necessities of life. These needs can only be fulfilled with the help of other resources, which include agricultural and mineral resources. To discover and obtain benefit from these resources, human efforts play an important part. If human knowledge, expertise and labour are excluded, the fruits of other resources cannot be obtained. The natural resources of oil, gas, gold etc. have been converted into wealth and given value because man discovered them and used them for its benefits. On the other hand, human life without these resources would have been charmless and even survival of human beings would have been impossible. So human resources and other resources are interdependent.

6. Problems and prospects

The fast growing population of Pakistan is a major problem and a source of hardship for the nation. Our resources are limited and there is a mismatch between our population and the resources. An imbalance is being created between the population of rural and urban areas. Migration from rural to urban areas is our major problem. This migration is due to search for jobs and better amenities of life. But, unplanned activities, devoid of future requirements, have created manifold problems. On the one hand, villages are losing their natural charm and on the other hand, urban areas suffer from the problems like shortage of water, electricity, health, sanitation, housing etc., Pollution in the cities has

created diseases. Crime is increasing day by day. The life in rural areas as well as in urban areas is becoming difficult. Rural areas do not have the required facilities whereas in urban areas facilities are available but are not enough for the growing population.

The only remedy to the problem is that unplanned migration of population from rural areas to urban areas should be stopped by taking following actions:

- a. Education for All (EFA) programme started by the Government should be strengthened by opening more educational institutions to make the people literate.
- b. Facilities like health, electricity and water should be provided on urgent basis to the rural areas including provision for housing.
- c. Job opportunities should be created by opening institutions of different kinds in the rural areas.
- d. Law and order situation in the rural areas should be made better to protect people from anti-social elements.
- e. Different indigenous jobs should be encouraged through soft term loans.
- f. Those who seek government employment should initially be posted in the rural areas, at least for 3 to 5 years.



7. Moderation in life

Moderation in life means to live within the available means. There is a saying that excess of everything is bad. Moderation is a way of proper thinking, behaving and acting. A person can be called moderate who makes an account of himself or herself and then decides to follow a path for his future life. Those who do not moderate their lives are exposed to troubles and hardships. Moderation demands reasonable attitude towards actions in all matters, economic, social and political. Moderation brings peace and prosperity in the society. Over ambitiousness is the cause of all evil practices. By following a moderate line of action one would lead a comfortable life.

As a nation, Pakistanis are highly emotional. We either completely indulge or take no care at all, which results in total indifference towards our duties. This

has made the society backward. Our extreme passions and sentiments have labeled us as an emotional nation. The emotions, sometimes, may bring temporary success but in the long run prove counter productive.

It is well-known to all that living within one's resources is a sign of prosperity. Those who exercise self-control and restraint lead a happy life. Again an over indulgent nation is always in difficulties for their extreme attitudes and actions. Islam has, therefore, taught moderation in all walks of life and has always stressed on self-control.

EXERCISE

A. Answer the following questions:

1. Describe the importance of resources.
2. Name different kinds of resources.
3. What are the advantages of forests?
4. Name the mineral resources of Pakistan.
5. What are the agricultural problems of Pakistan?
6. What are the sources of agriculture in Pakistan?
7. Write a note on the Nuclear Energy in Pakistan.
8. How are human and other resources interdependent?
9. Write note on moderation in life.

B. Fill in the blanks with appropriate words:

- i. The people involved in a number of tasks are called _____.
- ii. The soil formed from the flooded layers of silt and loam is called _____.
- iii. Mountain forests are found in _____.
- iv. The natural gas was first found in Pakistan at a place called _____.
- v. Moderation in life means _____.