

UNIT 06

Section 3 Resources and Economic Development of Pakistan

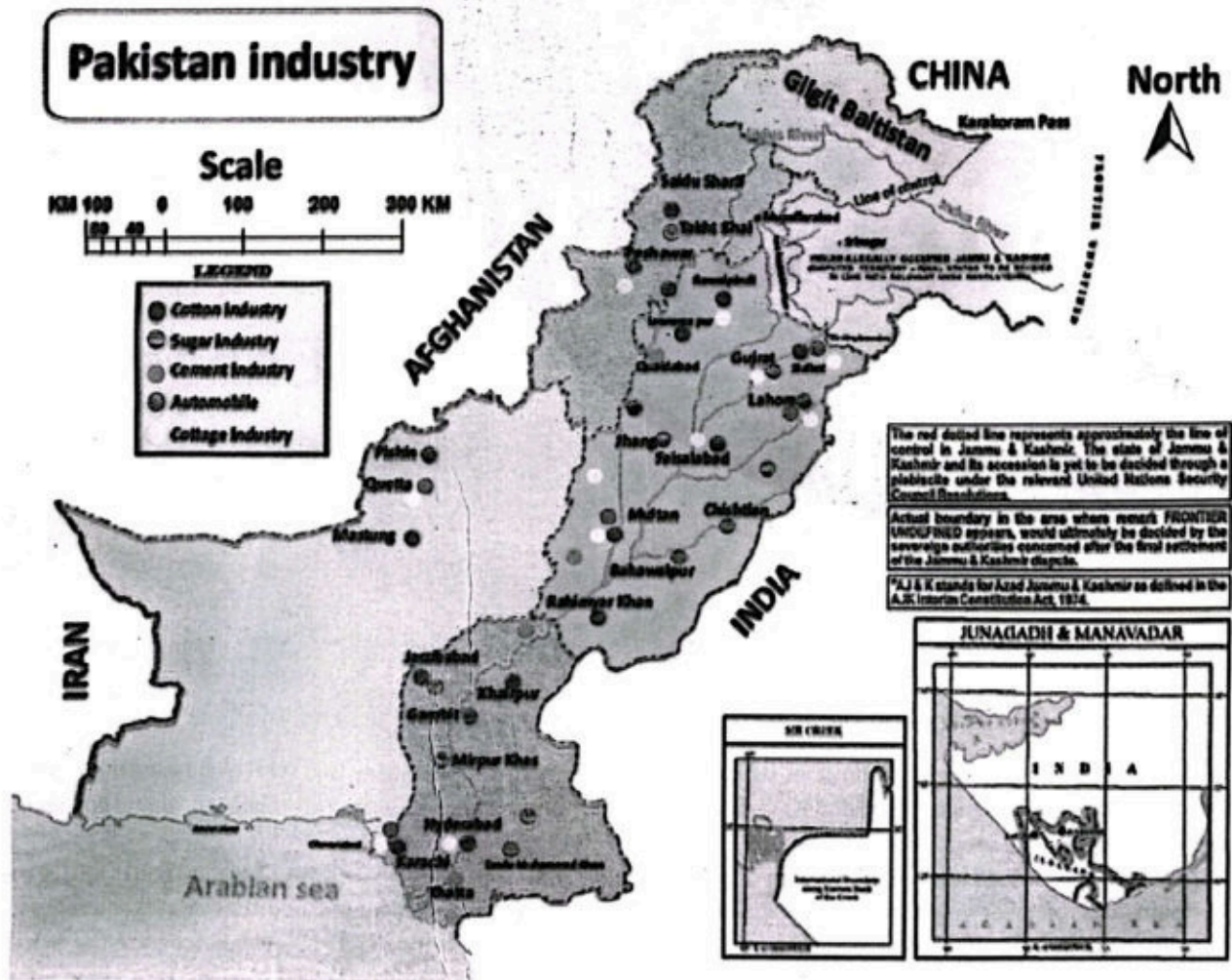
Industry, Livestock and Fish Farming

In this unit the students will be able to:

- Recognize Pakistan's principal industries such as sugar, cement, cotton, fertilizer, and steel evaluating their spatial distribution, significance, challenges, advantages, and disadvantages with reference to their economic, environmental, and social impacts.
- Analyze the advantages and disadvantages of cottage, small, and large-scale industries in Pakistan, and evaluate the effectiveness of government policies towards them with reference to government led industrial estates and zones.
- Analyze the impact of underemployment and unemployment on a micro and macro level and recognize the crucial role of literacy, skill development, and training in the development of Pakistan.
- Develop a comprehensive understanding of the distinct classifications of farming, including livestock farming and fish farming, with a focus on animal husbandry and fish farming and their distinctive features.
- Investigate the major obstacles in the livestock industry of Pakistan, such as disease outbreaks, limited market access, and inadequate infrastructure. Also, develop sustainable strategies to promote livestock practices and minimize environmental and social impacts.
- Assess the possible economic impact of the fishing industry in Pakistan, including the socio-economic advantages of fish farming while analyzing infrastructure development initiatives such as the Gwadar Port, CPEC, Makran Coastal Highway, and fishing markets to support sustainable fisheries and suggest potential solutions for achieving this goal.

Pakistan's Principal Industries

Pakistan is an agricultural country but the economy of the country is also supported by a diverse array of industries, each playing a crucial role in the nation's development and prosperity. Among the most significant are the sugar, cement, cotton, fertilizer, and steel industries. These industries not only contribute substantially to the country's GDP but also provide employment opportunities, drive technological advancements, and influence trade patterns. Understanding the spatial distribution of these industries reveals how geographical factors and resource availability shape their locations and operations.



Evaluating their economic, environmental, and social impacts uncovers the multifaceted challenges they face, such as resource management, pollution control, and market fluctuations. Additionally, examining the advantages and disadvantages of each industry highlights their potential for growth and areas needing improvement. Through this analysis, we gain insights into how these principal industries underpin Pakistan's economic framework and their role in fostering sustainable development.

Here we will learn about these principal industries one by one.

Sugar Industry

Do You Know?

The sugar industry in Pakistan is primarily located in the Punjab and Sindh provinces, where the climate and soil conditions are ideal for sugarcane cultivation. Major sugar mills are situated in areas such as Rahim Yar Khan, Faisalabad, and Badin. Economically, the sugar industry

Pakistan is among the top ten producers of sugar in the world. Find out the list of other countries in the list.

contributes significantly to the agricultural GDP and provides employment to millions, particularly in rural areas. It also supports allied sectors, such as paper and ethanol production.

The sugar industry also faces several challenges, including fluctuating sugarcane yields due to water scarcity and climatic changes, inefficiencies in sugar mills, and outdated technology. Issues related to pricing and payment delays to farmers further complicate the situation. Despite these challenges, the sugar industry generates substantial revenue through exports and supports rural development and infrastructure.

This industry also has some disadvantages, such as environmental concerns due to excessive water usage and pollution from mills, as well as social issues related to labour conditions and wage disparities. The economic, environmental, and social impacts of the sugar industry are multifaceted. Economically, it is vital for rural economies, but environmentally, it poses challenges like water depletion and soil degradation. Socially, it provides significant employment opportunities but also faces issues of labour exploitation.

The following table shows sugarcane plantation area, sugarcane production, yield and utilization by Sugar Mills from 2009 to 2023:

Pakistan				
				Area: Hect Prod: Tonnes Yield: Tonnes/Hect
Year	Area	Production	Yield	Utilization % by mills
2009-10	942,870	49,372,900	52.36	70.09
2010-11	987,700	55,442,100	56.13	80.47
2011-12	1,046,000	58,038,200	55.48	83.13
2012-13	1,128,098	63,718,523	56.48	79.00
2013-14	1,171,687	67,427,975	57.55	84.00
2014-15	1,113,161	62,794,827	56.41	80.90
2015-16	1,130,820	65,450,704	57.88	76.45
2016-17	1,216,894	75,450,620	62.00	94.00
2017-18	1,340,926	83,289,340	62.11	78.81
2018-19	1,101,073	67,129,645	60.97	74.13
2019-20	1,038,879	66,334,369	63.85	73.44
2020-21	1,164,112	80,963,078	69.55	72.38
2021-22	1,259,594	88,615,674	70.35	89.96
2022-23	1,318,143	87,947,967	66.72	74.55

Source: Pakistan Sugar Mills Association (PSMA)

Cement Industry

The cement industry in Pakistan is mostly located in the provinces of Punjab and Khyber Pakhtunkhwa, due to the availability of raw materials like limestone and gypsum. Cement plants are strategically situated in these areas to facilitate easy access to these essential resources. Economically, the cement industry is crucial for the construction and infrastructure sectors,

Expand Your Horizon

Pakistan is the 14th largest cement producer globally, with an annual production capacity exceeding 69 million tons as of 2024. Find out which countries import cement from Pakistan.

significantly contributing to national development. It also has significant export potential, especially to neighboring countries, and contributes to industrial growth and urbanization.

At present, there are 104 cement industries in Pakistan that are operating at their highest capacity as a result of the significant growth in commercial and industrial building. The industry makes a significant contribution of more than Rs 50 billion to the national treasury through tax payments. It fulfills its national duty by creating employment possibilities for more than 170,000 workers, both directly and indirectly.

However, the cement industry faces several challenges, including the energy-intensive nature of the production process and high production costs due to energy and raw material prices. Compliance with environmental regulations also adds to the costs. Despite these challenges, the cement industry has notable advantages, such as boosting the construction industry and supporting large-scale infrastructure projects, which in turn creates jobs in both manufacturing and construction sectors.

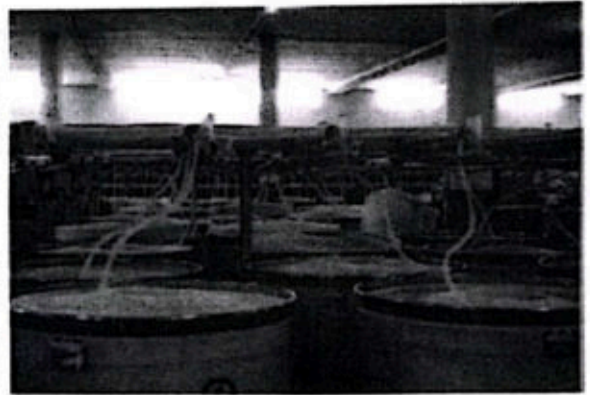
On the downside, the cement industry has a significant environmental footprint due to carbon emissions and dust pollution, as well as high energy consumption and reliance on non-renewable energy sources. The economic, environmental, and social impacts of the cement industry are substantial. Economically, it is critical for national development projects, but environmentally, it presents challenges due to emissions and resource consumption. Socially, while it provides job opportunities, it can also affect community health due to pollution.

Cotton Industry

The cotton and textile sector in Pakistan is a crucial component of the country's economy, making up a substantial 11% of the GDP and accounting for approximately 60% of export earnings. The industry employs a substantial labor force, representing 38% of the overall workforce, and possesses significant production capabilities in spinning, weaving, processing, and garment manufacturing. Cotton, the fundamental raw material of the sector, serves as both a significant cash crop and positions Pakistan as the third largest exporter worldwide.

Cotton is primarily grown in the provinces of Punjab and Sindh, which together account for nearly all of Pakistan's cotton production. In Punjab, districts such as Multan, Bahawalpur, Rahim Yar Khan, and Faisalabad are key producers. In Sindh, the main cotton-growing areas include Sanghar, Hyderabad, Mirpurkhas, and Nawabshah. The climatic conditions and fertile soils in these regions provide an ideal environment for cotton cultivation.

The cotton industry holds significant importance for Pakistan's economy. Cotton and its products, including yarn and textiles, account for a substantial portion of Pakistan's export earnings. The industry supports millions of jobs in farming, ginning, spinning, weaving, and garment manufacturing. Moreover, the textile sector is one of the largest industries in Pakistan, driving economic growth and industrial development. Despite its importance, the cotton industry faces several challenges. Cotton crops are highly susceptible to pests like bollworms, which can drastically reduce yield and quality. Cotton cultivation requires substantial water, and water scarcity due to inefficient irrigation and climate change poses a significant threat. Moreover, labor exploitation, poor working conditions, and the use of child labor are serious social issues that need to be addressed.



Cotton Mills in Pakistan

Fertilizer

The fertilizer industry in Pakistan plays a vital role in supporting the country's agricultural sector. Fertilizers are essential for enhancing crop yields and ensuring food security.

The fertilizer industry in Pakistan is concentrated in various regions. As the most extensive agricultural province, Punjab accommodates several fertilizer plants, primarily in towns such as Faisalabad, Sheikhupura, and Lahore. Sindh, specifically Karachi and its neighbouring regions, play a crucial role in the manufacture of fertilizers and utilise the port facilities for both importing and exporting operations.

The fertilizer industry has a vital and dual impact on both global food production and environmental sustainability. Its primary role is to manufacture and distribute fertilizers that are crucial for crop growth, thereby enhancing agricultural productivity and addressing the needs of a rapidly expanding global population. Nevertheless, the utilization of fertilizers can have adverse effects on the environment, such as water contamination and the release of greenhouse gases.

Due to increasing food demand and security concerns, this industry plays a crucial role in the national economy. With a contribution of around 4.4% to the large-scale manufacturing sector and 0.9% to the overall GDP, equivalent to PKR 100 billion, it is one of the major contributors. This impact transcends just financial metrics. The sector has a direct workforce of around 100,000 people and also has an indirect impact on more than 200,000 jobs in transportation, marketing, and retail. Furthermore, it provides a significant amount of tax money, surpassing PKR 100 billion, which aids in funding government operations.

The fertilizer industry is confronted with numerous obstacles, despite its significance. Supply-demand imbalance is one of the issues as farmers frequently experience higher prices as a result of fertilizer shortages, which are frequently caused by production constraints and import restrictions. Moreover, the fertilizer production process is energy-intensive, and the industry is significantly dependent on natural gas, which is susceptible to price fluctuations and supply disruptions.

In addition to its benefits, there are also some drawbacks. Overuse of fertilizers can result in soil degradation, water pollution, and the loss of biodiversity, all of which are examples of environmental degradation. The use of chemical fertilizers can result in respiratory and skin issues for producers and communities.

By ensuring balanced use and adopting sustainable practices, Pakistan can secure its agricultural future and promote overall development.

Iron Industry

Pakistan's steel industry is a critical component of the nation's industrial sector, making a substantial contribution to its economic growth. Steel is indispensable for the construction of infrastructure, such as bridges, structures, roads, and railways, which are indispensable for national advancement.

The steel industry in Pakistan is predominantly concentrated in a few key regions. Karachi, the industrial centre of Pakistan, is home to the country's major steel manufacturing facilities, such as the Pakistan Steel Mills, which is located in Bin Qasim. The port's proximity to this city facilitates the importation of basic materials and the exportation of finished products.



Pakistan Steel Mills Karachi

Punjab is also home to substantial steel production activities, particularly in locations such as Lahore, Gujranwala, and Sheikhupura. These regions are situated in close proximity to significant transportation networks and markets. In Khyber Pakhtunkhwa Peshawar and the adjacent areas are home to smaller steel manufacturing facilities that meet the local demand.

Advantages

Advantages of this industry include its support to the livelihoods of thousands of individuals across the country by providing employment opportunities in production, distribution, and sales. Moreover, steel is a critical component of a variety of industries, such as shipbuilding, machinery, automotive, and construction.

Disadvantages:

Along with its advantages, there are numerous challenges confronting the steel industry. The efficacy of steel manufacturing in Pakistan is impeded by frequent power shortages and high energy costs, as the process is energy-intensive. Insufficient supply of raw materials is yet another challenge. The reliance on imports is necessitated by the limited local availability of basic materials such as iron ore and scrap steel, which results in supply chain and cost issues.

The production of steel has the potential to cause substantial environmental damage, such as high carbon emissions and air and water pollution. Moreover, workers in steel mills may be exposed to health hazards as a result of high temperatures, heavy metals, and other pollutants. Economic Vulnerability: The industry is susceptible to global market fluctuations and supply chain disruptions due to its reliance on imported raw materials and energy.

Pakistan can revitalize its iron and steel industry by taking certain measures. Restructuring loans,

introducing policy reforms, taking care of workers' welfare, technology adoption and similar other steps may ensure better prospects for Pakistan's economy through this important industry.

Cottage and Small-Scale Industries in Pakistan

Cottage industries, also known as household industries, are small-scale, home-based manufacturing units that typically require minimal capital investment and utilize traditional skills. In Pakistan, cottage industries play a vital role in the economy by providing employment opportunities, preserving cultural heritage, and contributing to regional economic development.

The most common cottage industries in Pakistan include **carpet weaving**, where intricate designs are crafted into carpets for local use and export. **Hand-embroidery** work by skilled artisans produces beautiful patterns on textiles. Traditional crafts like **brassware** and **pottery** yield utensils, decorative items, and jewelry. **Handicrafts**, such as woodwork, leather goods, and bangles, are popular domestically and internationally. Additionally, **candle-making**,



Carpet Weaving in Pakistan

rug weaving, **cotton weaving**, and even **surgical instrument production** contribute to employment and cultural heritage. These cottage industries play a vital role in local economies and preserve traditional craftsmanship.

Advantages

- Cottage industries provide significant employment opportunities, particularly in rural areas, helping to reduce poverty and improve living standards.
- Cottage industries provide employment opportunities for women, particularly in rural areas, by providing income and a platform to showcase their talents.
- Cottage industries also help preserve and promote traditional crafts and skills, contributing to cultural heritage.
- Their flexibility and adaptability is yet another advantage as small-scale operations can quickly adapt to changes in market demand and trends.
- Enhanced living standards and poverty reduction are the result of the growth of cottage industries, which promote development in rural and underprivileged regions by increasing economic activity, consumption, investment, and aggregate demand.

Disadvantages:

Along with advantages, the cottage industries also have some disadvantages.

- Cottage industries typically operate on a small scale, limiting their production capacity and market reach.
- These industries often lack access to modern technology and machinery, resulting in lower productivity and efficiency.
- Cottage industry products may also struggle to compete with mass-produced goods, limiting their market potential.

- Due to the artisanal nature of production and inadequate technical training, maintaining consistent product quality can be challenging.
- Lack of storage facilities impedes production expansion.

Large-Scale Industries in Pakistan

Large-scale industries are significant manufacturing and production units that operate on a national or international scale. These units require considerable capital investment, advanced technology, and a large workforce. These industries are essential for the country's economic development, as they generate substantial employment opportunities, promote industrial expansion, and contribute to the GDP.

Pakistan's economy thrives on several key industries. **Textile and Garments** play a crucial role,

Expand Your Horizon

Pakistan's automobile industry has seen substantial growth and in recent years, the country has made significant strides towards adopting EV technology, with the government approving the National Electric Vehicle Policy (NEVP) to promote the use of electric cars and reduce carbon emissions. This policy aims to have 30% of all vehicles running on electricity by 2030.

with spinning, weaving, and garment manufacturing units contributing significantly. These textiles are both used domestically and exported globally. The **automobile manufacturing** sector produces cars, motorcycles, and commercial vehicles, with major players like Toyota, Honda, Hyundai, and Suzuki. **Cement factories** across the country meet domestic demand and also export to neighboring countries. **Steel mills** manufacture steel bars, sheets, and other construction materials. The **chemical and petrochemical industry** produces fertilizers, plastics, and pharmaceuticals. Large-scale power plants in the **energy sector** generate electricity from various sources, including hydro, thermal, and nuclear. Lastly, **food processing** units handle dairy, fruits, and grains. These industries collectively contribute to Pakistan's economic growth and provide employment opportunities.

Advantages

- Large-scale industries can produce goods on a mass scale, meeting high market demand and achieving economies of scale.
- These industries typically have access to the latest technology and machinery, enhancing productivity and efficiency.
- These industries can produce goods for export, contributing to foreign exchange earnings and economic growth.
- They provide substantial employment opportunities, supporting urbanization and industrialization.



Note For Teachers: Encourage students to learn more about the cottage industry of Pakistan through different sources. Find out geographical specialties such as Ajrak in Sindh. *What other products are famous in other parts of Pakistan?*

Disadvantages:

- Large-scale industries require significant investment, making them less accessible to small entrepreneurs.
- These industries can have a substantial environmental footprint, including pollution and resource depletion.
- Large-scale industries may dominate the market, reducing competition and potentially leading to monopolistic practices.
- These industries can be highly sensitive to global market fluctuations, impacting their stability and profitability
- Getting government approvals for establishment of large scale industries is mostly a time consuming process that discourages the potential industrialists.

Government Policies and Industrial Zones

The government's policies play a crucial role in shaping the effectiveness of cottage, small, and large-scale industries in Pakistan. The government of Pakistan has implemented a variety of policies to encourage the development of industries.

One such policy is **National Small and Medium Enterprises (SME) Policy 2021**. The main aim of this policy is to strengthen the country's industrial and manufacturing base by promoting SME growth. Through this policy, the government ensured reducing regulatory interference including an inspector-less inspection regime, lifting the requirement of no objection certificate (NOC) for startups and low-risk business expansions, tax facilitation where the tax was reduced for manufacturing sector SMEs, the introduction of simplified one-page tax return form, provision of low-interest loans up to Rs. 10 million.

Another important step in this direction is the establishment of industrial estates and Special Economic Zones (SEZ's). The objective of these estates and zones is to establish a conducive environment for industrial development, as well as to provide infrastructure and facilities.

Special Economic Zones are created to address the challenges of industrialization, low investments, and exports. These zones mitigate these concerns by guaranteeing a business-friendly environment within an institutional, legal, and infrastructural architecture that facilitates the establishment of a designated boundary. Pakistan initiated the establishment of Industrial Estates in the 1960s to encourage industrialization and exports, and Export Processing Zones in the 1980s. Nevertheless, these initiatives could not bring their intended goals as a result of the poor infrastructure and the absence of a business-friendly environment.

Pakistan enacted the SEZ Act in 2012 amended 2016 facilitated the establishment of SEZs. However, the potential of the SEZs in the country has been limited because of complex processes and procedures for approvals and insufficient supply of skilled labour. Technical hurdles in the financing of zone enterprises, and ineffective monitoring mechanisms are also hurdles in the success of such zones.

Despite many challenges, Pakistan has approved several Special Economic Zones (SEZs) under the China-Pakistan Economic Corridor (CPEC) and other initiatives. These include Rashakai SEZ in

Special Economic Zones (SEZs)



Attract Foreign
Direct Investment



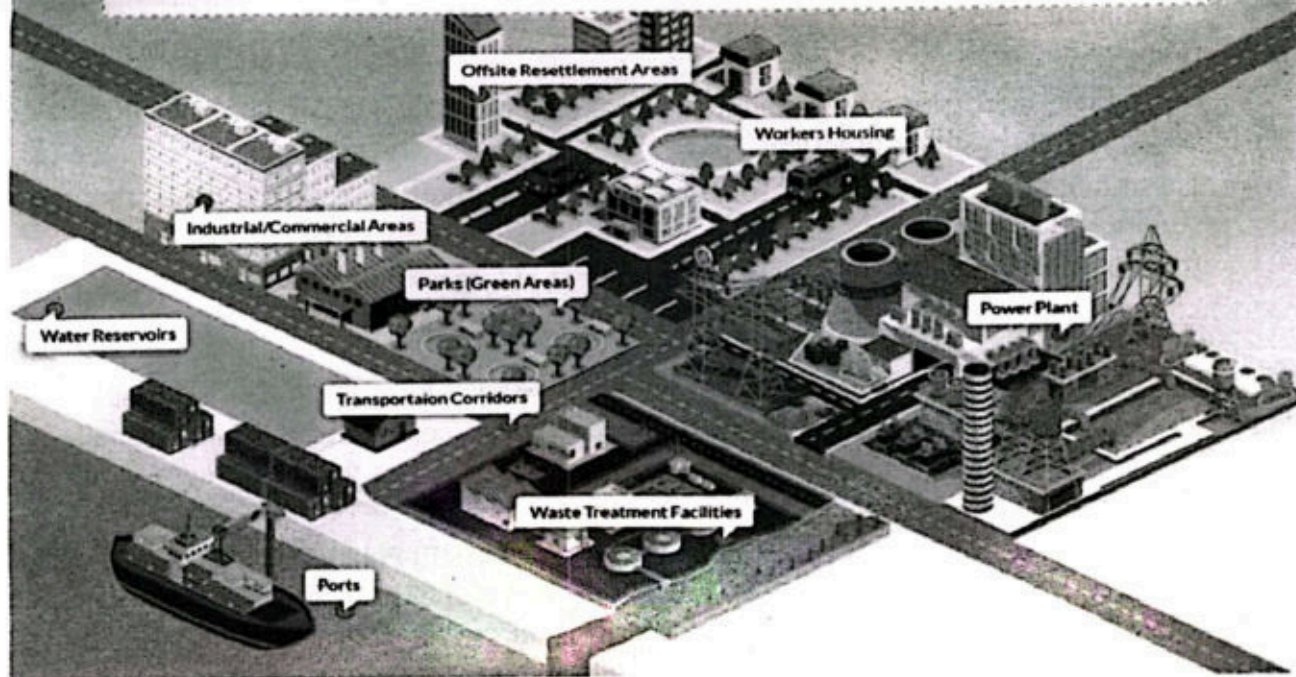
Create Employment
Opportunities



Catalyze Wider
Economic Reforms



Test new Approaches
to Economic Development



Nowshera, Dhabeji SEZ in Thatta, Allama Iqbal Industrial City in Faisalabad, Bostan Industrial Zone in Pishin, Balochistan, China Special Economic Zone Dhabeji in Thatta, Karachi Industrial Park, Quaid-e-Azam Apparel Park in Sheikhpura, ICT Model Industrial Zone in Islamabad, Mohmand Marble City in Mohmand, Khyber Pakhtunkhwa, and Pakistan Steel Mills Industrial Park in Karachi. In addition to these there are many other industrial zones and special economic zones have been approved by the government.

Advantages

Industrial estates provide essential infrastructure, including transportation networks, water supply, and electricity. These zones foster innovation, collaboration, and resource sharing by grouping industries together. Economic development is stimulated by the attraction of both domestic and foreign investment to well-developed industrial zones. Industrial estates frequently offer simplified regulatory procedures, which minimize the bureaucratic obstacles that businesses encounter.

Disadvantages

The concentration of industrial zones in specific regions may result in inconsistent economic development throughout the country. Moreover, underutilized industrial estates may fail to accomplish their intended objectives due to inadequate planning and execution. The absence of appropriate safeguards in industrial zones can result in environmental degradation.

Pakistan can fully realize the potential of its diverse industrial sector by fostering innovation, assuring equitable development, and implementing sustainable practices.

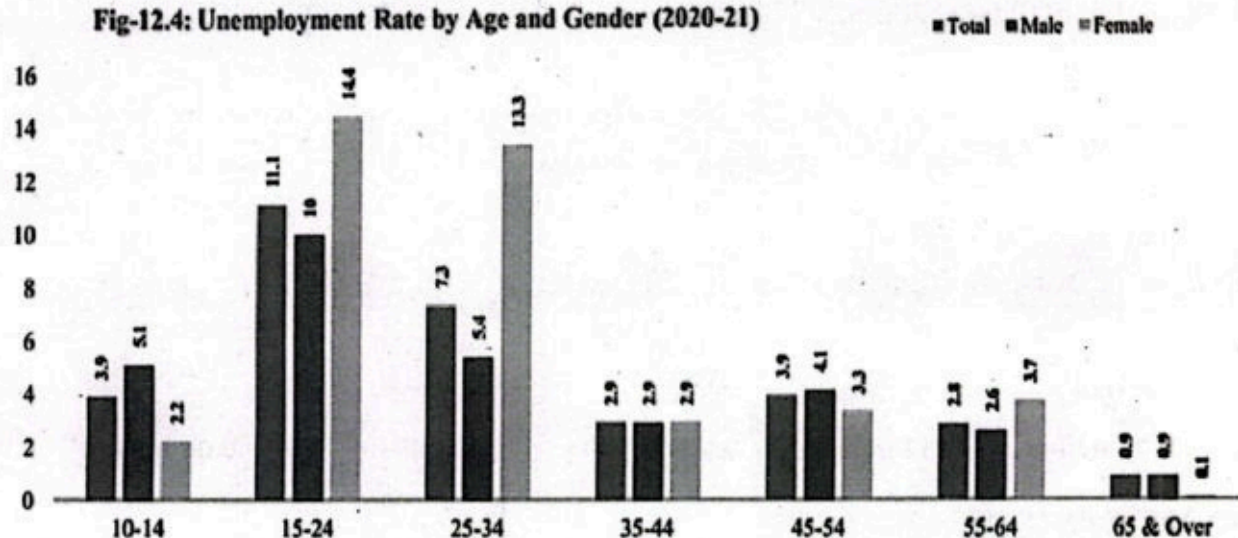
Unemployment and underemployment in Pakistan

Pakistan's economy and society are significantly impacted by unemployment and underemployment. It is essential to comprehend the effects of these challenges at both the micro (individual and domestic) and macro (national) levels in order to promote economic development and address them.



Heavy Electrical Complex Hattar Industrial Zone

Fig-12.4: Unemployment Rate by Age and Gender (2020-21)



Source: Labour Force Survey

The overall unemployment rate of Pakistan in 2024 is approximately 8%. There are several reasons behind this figure including lack of literacy, insufficient skill development, and lack of appropriate training to establish a more resilient and prosperous Pakistan. This relatively high unemployment rate underscores ongoing economic challenges and the need for structural reforms to stimulate job creation and economic growth.

Impacts at the Micro-Level

Unemployment has several impacts on individual and household level. Let's examine some of the most significant impacts.

Financial Pressures on Families

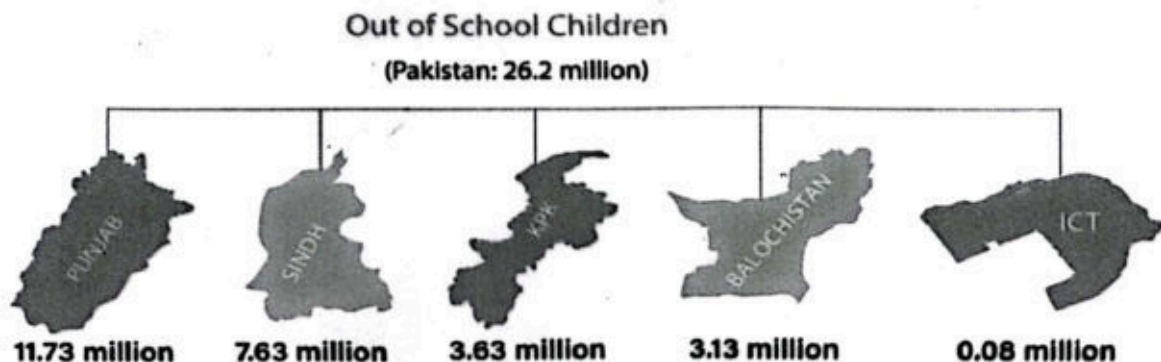
Household incomes are diminished as a result of unemployment and underemployment, which complicates the ability of families to satisfy their fundamental requirements. Poverty, malnutrition, and inadequate access to healthcare and education may be the consequences of this financial strain.

Diminished Quality of Life

Stress, anxiety, and a diminished quality of life are frequently experienced by individuals who are unemployed or underemployed. Their self-esteem and general well-being may be adversely affected by their inability to secure suitable employment. This sometimes results in drug abuse, involvement in anti-state activities and even committing suicide. There is a greater need to promote entrepreneurship so that educated and skilled individuals can create jobs for others instead of looking for one.

Access to Education is Limited

Children from families that are either unemployed or underemployed are less likely to attend school regularly or pursue higher education. At present, there are more than 26 million children out of school in Pakistan and one of the major reasons is economic constraints due to the unemployment of parents. This perpetuates the cycle of destitution and restricts the future opportunities of these children.



Impacts at the Macro Level

Decreased Economic development

The overall productivity and development of the economy are diminished by high levels of unemployment and underemployment. The economy operates below its potential when a substantial portion of the workforce is not fully utilized.

Enhanced Social Welfare Costs

To assist individuals who are unemployed or underemployed, the government may need to increase its expenditures on social welfare programs. This can result in a diversion of resources from other essential services and a strain on public finances.

Social Instability

Social unrest, increased crime rates, and political instability can result from widespread unemployment and underemployment. Protests and challenges to governance may arise as a consequence of dissatisfaction among the population.

Factors to Improve Employment Situation

A multifaceted approach is necessary to reduce unemployment in Pakistan. These include investment in decent employment, particularly for women and adolescents, social protection

Benazir Income Support Program (BISP) is one of the largest social safety net programs in South Asia. BISP has reached over 5.7 million families, making significant contributions towards poverty alleviation and women's empowerment in Pakistan.

programmes for the most impoverished and vulnerable members of society, support of small and medium-sized enterprises (SMEs) to generate employment opportunities, and social dialogue as a strategy for addressing employment challenges and improving social stability.

Role of Skills, Training, and Literacy

The main factors in dealing with the situation of unemployment are improving literacy rate and its quality, adequate skill development, and appropriate training. Education planners need to focus more on skilled base and vocational education and target the skills required for future jobs. Let's examine the effects of these on dealing with the issue of unemployment:

Enhancing Employability

It is imperative to enhance employability through the acquisition of skills, training, and literacy. Education provides individuals with the fundamental knowledge required for a variety of occupations, while vocational training and specific skills prepare them for the demands of the job market.

Increased Productivity

A workforce that is both literate and competent is more efficient and productive. The overall economic output can be enhanced by the ability of skilled workers to adapt to new technologies and processes, thereby spurring innovation.

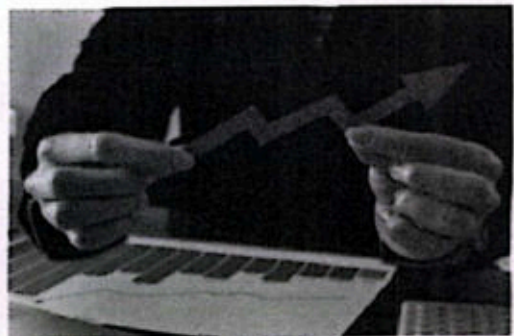
Reducing Unemployment and Underemployment

By offering pertinent education and training, individuals are more adequately equipped to satisfy the demands of the labour market. This results in decreased unemployment and underemployment rates by reducing the discrepancy between the skills of the workforce and the available positions.

Economic Development

The development of a knowledgeable and competent workforce is facilitated by the investment in literacy, skills, and training. This, in turn, attracts investment, promotes industrial development, and strengthens the nation's competitive position in the global market.

Pakistan can establish a productive workforce that encourages economic expansion, mitigates poverty, and improves social cohesion by investing in vocational training and education.



Farming in Pakistan

Farming plays a vital role in Pakistan's economy, serving as a key source of food, employment, and raw materials for different industries. There are two main categories: crop farming and animal farming. Animal farming encompasses various types, including livestock farming and fish farming. This section delves into the fascinating world of livestock farming and fish farming, shedding light on the unique characteristics and significance of these practices. Let's first discuss livestock farming.



Farms in Pakistan

Significance of Livestock and Fish Farming

Livestock farming and fish farming are both crucial components of Pakistan's agricultural sector. Essential sources of protein and other nutrients are provided, contributing to the nation's food security. In terms of economic development, it's worth noting that these farming practices have the potential to create income and employment opportunities, especially in rural areas. Livestock farming holds great cultural significance, as it is intricately woven into the fabric of rural traditions and livelihoods.

By engaging in animal husbandry and aquaculture, Pakistan has the potential to achieve food security, foster economic development, and uphold sustainable agricultural practices. By tackling the obstacles in these industries, such as effectively managing diseases and efficiently allocating resources, we can significantly boost their productivity and long-term viability, ultimately benefiting the entire nation.

Livestock Farming

The extensive livestock population in Pakistan plays a crucial role in its agricultural economy, especially in rural regions where farmers rear animals for both self-sufficiency and business ventures.

Table 2.5: Estimated Livestock Population			million numbers
Species	2021-22 ¹	2022-23 ¹	2023-24 ¹
Cattle	53.4	55.5	57.5
Buffalo	43.7	45.0	46.3
Sheep	31.9	32.3	32.7
Goat	82.5	84.7	87.0
Camels	1.1	1.1	1.2
Horses	0.4	0.4	0.4
Asses	5.7	5.8	5.9
Mules	0.2	0.2	0.2

¹: Estimated figure based on inter-census growth rate of Livestock Census 1996 & 2006

Source: Ministry of National Food Security & Research

In this section, we will examine Pakistan's livestock capacity, encompassing a wide range of species such as buffalo, sheep, cow, goat, camel, equine, and poultry. It also covers the production of various raw materials like skin, wool, and hides, as well as the significant contributions of the livestock sector to the agro-based industry through the production of milk, eggs, butter, meat, and oils.

Animal Husbandry

In the world of agriculture, animal husbandry plays a crucial role. It involves the art and science of breeding and raising livestock, which are essential for various purposes. It encompasses the management of animals for a multitude of purposes, including the production of meat, milk, wool, and their utilisation for labour. In Pakistan, livestock commonly found includes cattle, buffaloes, goats, sheep, and poultry.



Livestock Farm in Pakistan

Characteristics of animal husbandry include selective breeding which is a technique employed to enhance favourable characteristics in animals. This method aims to increase milk production or improve the quality of meat. Feeding and nutrition also play a crucial role in maintaining the health and productivity of livestock. This involves offering well-rounded nutrition and additional dietary support. Moreover, healthcare is of utmost importance when it comes to taking care of animals. It is crucial to provide regular veterinary care and vaccinations to prevent diseases and ensure the overall welfare of the animals. Providing appropriate housing is also crucial for the well-being of livestock, as it safeguards them from harsh weather and potential threats from predators.

Livestock farming plays a crucial role in the financial well-being of numerous rural households and makes a substantial contribution to the overall national economy. This is achieved through the production of meat, dairy products, and leather goods.

Challenges to Animal Husbandry

- Controlling diseases in livestock poses a significant challenge that necessitates the use of effective vaccination and veterinary services.
- Resource Management is another crucial aspect of maintaining sustainable livestock farming. It is imperative to ensure that there is a sufficient supply of water, feed, and grazing land for the livestock.
- Farmers frequently encounter challenges when it comes to accessing markets in order to sell their products at equitable prices.

Fish Farming

Fish farming, also known as aquaculture, is the practice of cultivating fish and other aquatic organisms in controlled environments such as ponds, tanks, or cages. It involves breeding, rearing, and harvesting fish to meet the demand for food and other products. This method allows

Expand Your Horizon

Did you know that Pakistan's fish farming industry is rapidly growing? One of the most interesting developments is the introduction of shrimp farming in the coastal areas of Sindh and Balochistan. Learn more about this and share with the class.

for the efficient production of fish species like carp, tilapia, and catfish, which are commonly farmed in Pakistan.

Fish farming is crucial for ensuring food security, providing employment, and supporting the economy through both local sales and exports. Key aspects include maintaining water quality, providing appropriate nutrition, and managing disease, making it a sustainable alternative to traditional fishing methods.

Ensuring the quality of water is of utmost importance in order to promote the well-being and development of fish. Monitoring oxygen levels, temperature, and pH is an essential part of the process. Moreover, ensuring the right kind of feed is crucial for the growth and well-being of fish. There are a variety of options available, ranging from commercial pellets to natural food sources. In selective breeding programmes, the main goal is to improve growth rates, disease resistance, and other desirable traits in fish. Fish farming also plays a crucial role in ensuring food security, generating employment opportunities, and bolstering the economy through both exports and local sales.

Challenges to Fish Farming in Pakistan

- Maintaining optimal water conditions can be quite a challenge and requires constant monitoring and management.
- Fish can be vulnerable to a range of diseases and parasites, which calls for the implementation of effective strategies to keep them healthy.
- In order to achieve long-term success, it is crucial to prioritize sustainable practices that aim to minimize environmental impact and preserve biodiversity.
- Lack of modern preservation and marketing techniques also pose a great challenge for fish farming in the country.

Sustainable Livestock Practices

Sustainable livestock practices refer to methods of raising animals for food production that prioritize environmental conservation, animal welfare, and economic viability. These practices aim to minimize negative impacts on the environment while ensuring the long-term health and productivity of livestock.

Promoting sustainable livestock practices in Pakistan is crucial for addressing environmental degradation, improving animal welfare standards, and ensuring the economic sustainability of the livestock sector. By adopting these practices, Pakistan can mitigate the effects of climate change, enhance food security, and contribute to a more sustainable future for both the environment and the livestock industry.

Here are several strategies that can help achieve these goals:

Implementation of Agroecological Practices

Practices such as rotational grazing and integrated pest management can help improve soil health and reduce the need for chemical inputs, leading to long-term sustainability in the livestock industry. Furthermore, supporting small-scale farmers in adopting these sustainable strategies can also enhance their livelihoods and contribute to poverty alleviation in rural areas.



Promotion of Organic Farming Methods

This can also play a crucial role in reducing environmental impact and promoting animal welfare. By avoiding synthetic pesticides and fertilizers, organic farming helps maintain ecosystem balance and ensures the production of healthier food products for consumers.

Use of Renewable Energy Sources in Livestock Operations

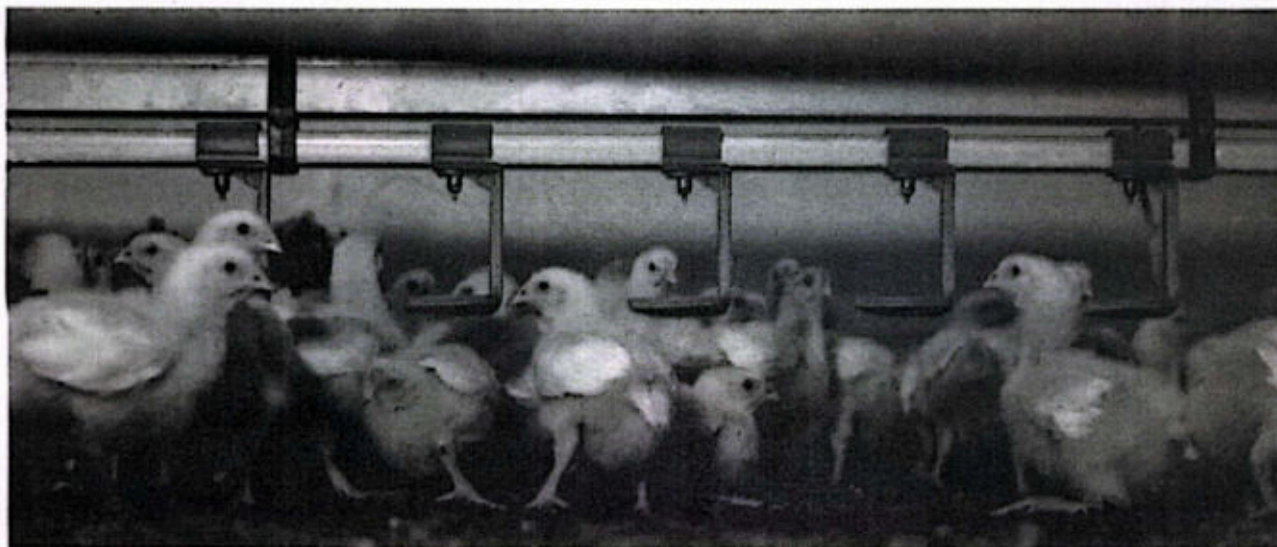
This strategy can further reduce carbon emissions and decrease reliance on fossil fuels, contributing to overall environmental sustainability. Implementing solar panels or wind turbines can help farms become more energy-efficient and cost-effective in the long run.

Improved Breeding Techniques

Implementing selective breeding programs can improve livestock productivity and disease resistance. By choosing animals with desirable traits, farmers can enhance meat, milk, and wool yields while reducing the need for chemical inputs.

Water Conservation

Adopting water-saving techniques such as drip irrigation for forage crops and efficient water use practices in animal husbandry can help conserve this vital resource. Rainwater harvesting and constructing water reservoirs can also provide sustainable water supplies.



Water Conservation in Poultry Farms

Feed Management

Using locally available and sustainably sourced feed reduces the environmental footprint of livestock farming. Integrating crop residues, agro-industrial by-products, and balanced rations can improve feed efficiency and reduce waste.

Manure Management

Properly managing animal manure through composting and anaerobic digestion can reduce greenhouse gas emissions and produce valuable organic fertilizers for crops. This reduces the reliance on chemical fertilizers and improves soil health.

Veterinary Services

Providing regular veterinary care, vaccination programs, and disease surveillance improves animal health and productivity. Healthy livestock are more efficient in converting feed into meat, milk, and other products, reducing the overall environmental impact.

Animal Welfare

Ensuring high standards of animal welfare, including adequate housing, nutrition, and humane handling, enhances productivity and reduces stress-related losses. This also addresses ethical concerns related to livestock farming.

Farmer Education

Training programs for farmers on sustainable practices, resource management, and animal health can empower them to adopt eco-friendly techniques. Extension services and farmer field schools can disseminate knowledge and innovations effectively.

Research and Development

Investing in research and development to innovate and adapt sustainable livestock practices to local conditions can drive progress. Collaborations between research institutions, government, and the private sector are vital for success.

These strategies not only enhance livestock productivity but also minimize environmental degradation and promote social well-being.

Pakistan's Fishing Industry

The fishing industry in Pakistan holds immense importance for the nation's economy, making substantial contributions to food security, employment opportunities, and export earnings. Pakistan is situated along the Arabian Sea and has a coastline that stretches for approximately 1,050 kilometres. This vast coastline provides abundant marine resources.

The industry includes both marine and inland fisheries, with significant fishing activities focused in the coastal provinces of Sindh and Balochistan. The fishing sector is known for its diverse range of fish species, including prawns, tuna, mackerel, and various freshwater fish. These abundant resources contribute to the richness of the industry.



Pakistani fishermen in Gwadar

Economic Impact of the Fishing Industry

Contribution to GDP

The fishing industry significantly contributes to Pakistan's Gross Domestic Product (GDP). It supports various related industries, such as processing, marketing, and export, thereby adding substantial value to the economy. According to the Pakistan Economic Survey, the fisheries sector contributes about 1% to the national GDP, reflecting its importance within the broader agricultural and industrial sectors.

Employment Opportunities

The fishing industry is a major source of employment, particularly in coastal areas of Sindh and Balochistan. It provides direct employment to approximately 390,000 fishermen and indirect employment to around 500,000 people involved in ancillary activities such as boat building, net making, and processing. This sector is vital for rural development, offering livelihoods to millions and helping to alleviate poverty in coastal communities.

Export Revenues

Fish and seafood products are significant export commodities for Pakistan, contributing to valuable foreign exchange earnings. The country exports variety of fish products to international markets, including China, the Middle East, the European Union, and the United States. In the fiscal year 2022-2023, Pakistan's seafood exports amounted to over \$450 million. These exports are crucial for the country's trade balance and economic stability, demonstrating the global demand for Pakistani seafood.

• Fish Farming:

- o Benefits of fish farming (aquaculture) in Pakistan.
- o Comparison of wild fishing vs. fish farming.
- o Case studies of successful fish farming initiatives.

Infrastructure Development Initiatives

The Pakistani government has launched several infrastructure development initiatives to boost the fishing industry and enhance its export capabilities. Following are few of such initiatives:

Gwadar Port

Gwadar Port is a deep-sea port located in Balochistan. It is a strategic hub for trade and commerce, connecting Pakistan to the Middle East, Africa, and Central Asia. Gwadar Port has significantly improved Pakistan's fishing industry by providing a modern and efficient export facility. It has increased the country's fish and seafood exports, generating valuable foreign exchange earnings.

China-Pakistan Economic Corridor (CPEC)

CPEC is a comprehensive development project aimed at upgrading Pakistan's infrastructure. It has invested heavily in modernizing the fishing industry's



Gwadar Port

infrastructure, including cold storage facilities, processing plants, and transportation networks. This has improved the quality and safety of fish and seafood products, increasing their global market competitiveness.

Makran Coastal Highway

The Makran Coastal Highway connects the fishing communities along the Arabian Sea coast, providing a vital transportation link for the fishing industry. It has enhanced accessibility to markets, reduced transportation costs, and increased the industry's efficiency.

The Makran Coastal Highway has significantly reduced transportation costs and time, enabling fishermen to sell their catch quickly and efficiently. This has improved the freshness and quality of fish and seafood products, increasing their market demand.



Makran Coastal Highway

Do You Know?

The Makran Coastal Highway, has significantly reduced the travel time between Karachi and Gwadar from 48 hours to just 7 hours. This remarkable transformation is not only a feat of engineering but also a game-changer for economic development in the region.

Fishing Markets

The government of Pakistan has developed and modernized local fishing markets, providing a platform for fishermen to sell their catch. These markets have improved the quality and safety of fish and seafood products, increasing consumer confidence.

Modern fishing markets have promoted sustainable fishing practices, reduced post-harvest losses, and improved market access. They have also increased the availability of fresh fish and seafood products, supporting the local economy and consumer demand.

Potential Solutions for Sustainable Fisheries

Regulation and Management

Effective fishing regulations are crucial to prevent overfishing and ensure the long-term sustainability of fish stocks. By setting catch limits, enforcing seasonal bans, and restricting the use of harmful fishing gear, Pakistan can protect its marine biodiversity and allow fish populations to recover. This approach also includes monitoring and penalizing illegal, unreported, and unregulated fishing activities to maintain the ecological balance of marine ecosystems.

Technological Advancements

Modernizing the fishing industry with advanced techniques and equipment can enhance efficiency and reduce environmental impact. Using selective fishing gear, such as circle hooks and escape panels, can minimize bycatch and protect juvenile fish. Modern boats equipped with GPS, sonar, and fish-finding technologies can help fishermen locate and catch target species more effectively, reducing waste and overfishing.

Capacity Building

Educating fishermen about sustainable fishing practices is essential for long-term industry viability. Training programs can cover topics such as responsible fishing techniques, the importance of marine conservation, and compliance with regulations. These programs empower fishermen to adopt environmentally friendly practices, ensuring the sustainability of their livelihoods and marine resources.

Infrastructure Investment

Investing in infrastructure, such as modern port facilities, efficient highways, and well-equipped markets, is crucial for the fishing industry's growth. Improved infrastructure reduces post-harvest losses, enhances market access, and ensures the timely transportation of fish products. Such investments also support the economic development of coastal communities and contribute to the national economy.

Adopting these sustainable strategies can significantly improve the fishing industry in Pakistan, ensuring its long-term viability and ecological balance.

What I have Learned

- Pakistan's key industries include sugar, cement, cotton, fertilizer, and steel, each with specific geographic distributions based on resource availability and infrastructure.
- These industries significantly contribute to the country's GDP, employment, and export revenues but also face challenges such as resource shortages, environmental concerns, and economic vulnerabilities.
- The economic impact of these industries includes job creation and foreign exchange earnings.
- Environmental concerns involve pollution and resource depletion, while social impacts include community development and employment opportunities.
- Cottage industries preserve traditional crafts and provide employment in rural areas.
- Small-scale industries contribute to economic diversification and innovation.
- Large-scale industries drive mass production and export but require significant investment and can dominate markets.
- Government-led industrial estates and zones, such as SEZs, aim to provide infrastructure and support for industrial growth.
- Effective policies are crucial for addressing challenges like resource management, market access, and regulatory frameworks.
- Unemployment and underemployment affect both individuals and the economy, leading to financial strain and reduced economic growth.
- Addressing these issues through literacy, skill development, and training is essential for economic stability and growth.
- Education and vocational training enhance employability and productivity, driving economic development.
- These initiatives are critical for transitioning to more advanced industrial and agricultural practices.
- Farming in Pakistan includes livestock farming and fish farming, each with unique features and economic contributions.
- Animal husbandry focuses on breeding and raising livestock, while fish farming involves

cultivating fish in controlled environments.

- Major obstacles in the livestock industry include disease outbreaks, limited market access, and inadequate infrastructure.
- Sustainable strategies, such as improved breeding techniques, better resource management, and veterinary care, can mitigate these challenges.
- The fishing industry contributes to food security, employment, and export revenues.
- Fish farming, in particular, offers socio-economic advantages by providing reliable protein sources and creating jobs.
- Projects like Gwadar Port, CPEC, Makran Coastal Highway, and modern fishing markets are crucial for supporting sustainable fisheries.
- These initiatives enhance connectivity, reduce transportation costs, and improve market access for fish products.
- Implementing effective fishing regulations, adopting modern techniques, and investing in infrastructure are key strategies for sustainable fisheries.
- Capacity building through training and support for fish farmers promotes sustainable practices and long-term industry viability.
- Integrating literacy, skill development, and infrastructure improvements is essential for the sustainable growth of Pakistan's primary industries.
- Collaborative efforts between the government, private sector, and communities can address challenges and harness opportunities for economic development.

EXERCISE

Answer the following questions by choosing the best answer A, B, C or D.

1. **As of 2024, Pakistan's annual production capacity of cement is about"**
 - a. 39 million tons
 - b. 69 million tons
 - c. 99 million tons
 - d. 129 million tons
2. **Which province in Pakistan is the largest producer of sugar?**
 - a. Balochistan
 - b. Sindh
 - c. Punjab
 - d. Khyber Pakhtunkhwa
3. **Which of the following industries is most associated with traditional crafts in Pakistan?**
 - a. Steel industry
 - b. Cement industry
 - c. Cottage industry
 - d. Fertilizer industry
4. **What is the primary focus of animal husbandry in Pakistan?**
 - a. Breeding and raising livestock
 - b. Cultivating crops
 - c. Manufacturing fertilizers
 - d. Mining for minerals

5. Which strategy would be most effective for the government to support small-scale industries in Pakistan?
 - a. Increasing import tariffs
 - b. Providing tax incentives and facilitating access to credit
 - c. Encouraging large-scale mergers
 - d. Limiting exports to focus on domestic markets
6. Which of the following infrastructure projects is most important for the China-Pakistan Economic Corridor (CPEC)?
 - a. Makran Coastal Highway
 - b. Gwadar Port
 - c. Thar Coal Project
 - d. Karakorum Highway
7. How can literacy and skill development help reduce unemployment in Pakistan?
 - a. By improving employability
 - b. By increasing foreign aid
 - c. By reducing birth rates
 - d. By promoting urbanization
8. Which challenge is commonly faced by the livestock industry in Pakistan?
 - a. Excessive rainfall
 - b. Disease outbreaks
 - c. Overfishing
 - d. Soil depletion
9. Which factor is most critical in determining the location of large-scale industries such as steel and cement in Pakistan?
 - a. Proximity to urban centers
 - b. Availability of raw materials and energy resources
 - c. Government policies
 - d. Climate conditions
10. How can sustainable practices in livestock farming mitigate the environmental impact in Pakistan?
 - a. By increasing the use of chemical fertilizers
 - b. By adopting rotational grazing and improving waste management
 - c. By expanding the number of livestock
 - d. By reducing veterinary care

Answer the following questions briefly.

1. What are the main geographic regions in Pakistan known for sugar production? You may show them on the map of Pakistan on page 127.
2. How do cottage industries contribute to rural development in Pakistan?
3. What are some common environmental challenges faced by Pakistan's cement industry?

4. How does fish farming help improve food security in Pakistan?
5. What role does the Makran Coastal Highway play in supporting the fishing industry in Pakistan?

Answer the following questions in detail.

1. Evaluate the economic, environmental, and social impacts of Pakistan's key industries and discuss how these industries contribute to the country's overall development.
2. Discuss the significance of government policies in promoting the growth of cottage and large-scale industries in Pakistan.
3. Analyze the role of literacy, skill development, and training in addressing the issues of underemployment and unemployment in Pakistan.
4. Compare and contrast livestock farming and fish farming in Pakistan, focusing on their distinctive features, economic contributions, and challenges.
5. Assess the impact of major infrastructure development initiatives, such as the Gwadar Port, CPEC, Makran Coastal Highway, and fishing markets, on the fishing industry in Pakistan.

Compare and Contrast

Compare and contrast the economic, environmental, and social impacts of Pakistan's cottage industries and large-scale industries. Use specific examples and data to support your points.

Relevance across Time

Investigate how the significance and challenges of Pakistan's livestock and fish farming have evolved from their inception to the present day. Focus on historical context, economic evolution, technological advancement, and environmental impact. Reflect on how past lessons can inform future strategies for livestock and fishing in Pakistan.

Project

Find out the problems of fishermen in different coastal areas of Pakistan. Based on your findings, propose corrective measures.

Glossary

Spatial Distribution: The arrangement and spread across a geographic area.

Cottage Industry: Small-scale, home-based manufacturing and production activities, often involving traditional methods.

Industrial Estates and Zones: Designated areas for industrial development, often provided with infrastructure and services to support businesses and manufacturing.

Underemployment: A situation in which individuals are employed in jobs that do not fully utilize their skills or abilities, often part-time or low-wage positions.

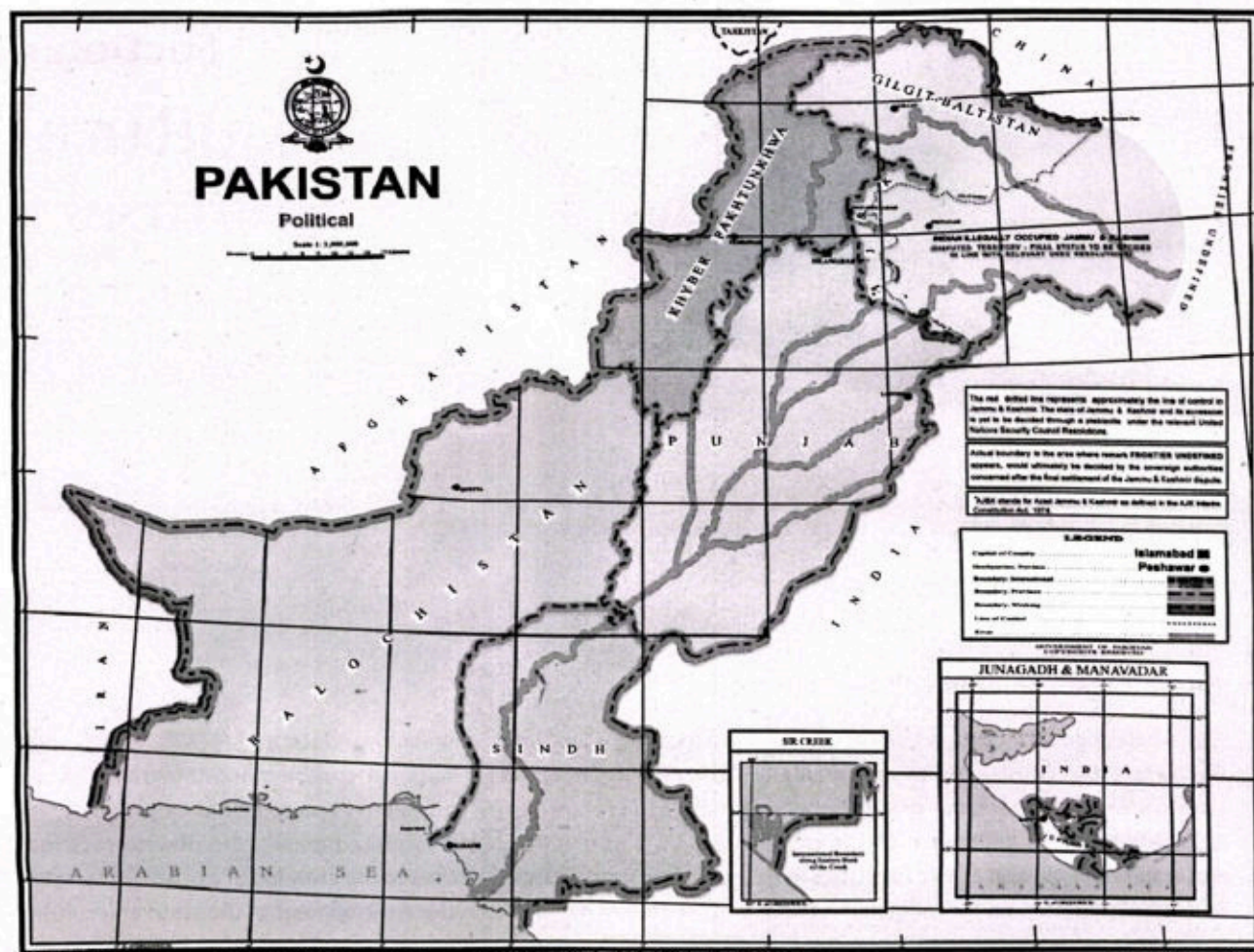
Unemployment: The state of being jobless and actively seeking employment.

Micro Level: Refers to individual or small-scale economic activities and impacts.

Macro Level: Refers to large-scale economic activities and impacts, often at the national or global level.

Skill Development: Training and education aimed at enhancing individuals' abilities to perform specific tasks or jobs.

Animal Husbandry: The branch of agriculture concerned with the breeding and caring of farm animals



List more words and write their meaning that you find difficult in this unit.
