

Secondary and Tertiary Industry

Secondary

- It is the changing of raw materials from primary or secondary sectors into semi-finished or finished products.
- ... Through processing or manufacturing.

Inputs

- Capital
- Land
- Power
- Labor
- Enterprise
- Raw materials
- Transport
- Machinery

Processes

- Smelting
- Weaving
- Spinning
- Checking
- Dyeing
- Printing
- Canning
- Moulding
- Mixing
- Stitching

Output

- Cement
- Fertilizers
- Cotton yarn
- Sugar
- Iron (pig)
- Coils
- Drugs
- Fans
- Tractors
- Galvanized sheets

Factors influencing industrial location

- Collecting all inputs

- On low costs
- Processing / manufacturing items
 - On low costs
- Market distribution
 - For high profit

Physical factors

- Natural route sites requirement (Flat Land, Vast Land, Cheap Land)

Human factors

- Capital, raw materials, skilled labor, transport, government policies, access to market, industrial linkages.

Raw materials

Basic commodity from which semi or finished products are made

- May be of primary sectors (directly from ground / sea)
 - Like fishing, forestry, farming, mining, etc.
 - For example: wheat, cotton (raw), limestone, etc.
- It may also be of secondary industry (processed / semi-manufactured).
 - For example: cotton yarn, wood pulp, coils, etc.

Examples of raw material

(Draw diagram from copy)

Types of secondary industry

Cottage

- Home based
- Family labor
- Inherited knowledge
- Traditional tools
- Low capital invested
- Very small output

Small scale

- Small amount of land
- Small amount of machinery
- Small amount of capital (up to 10 million rupees)
- Small amount of labor (10 people)
- Small amount of raw material
- Small outputs
- Small profit

Large scale

- Large amount of bulky raw materials
- Large amount of power
- Large amount of machinery
- Large amount of labor

Labor intensive

- This is where skills of labor is more important than machinery)
- For example: Cottage industry.

Capital intensive

- This is where machinery is more important than labor
- For example: large scale industry like steel and ship making

Heavy industry

- This is where weight of the output is far more than its price

Light Industry

- This is where weight of the output is far less than its price

Principal industries of Pakistan

Cotton Textile

- 50% of employment to industrial labor
- 60% of exports
- Foreign exchange earned
- Fulfills local demand so less import needed
- Utilizes local raw material
- Main areas are: Karachi, Hyderabad, Multan, Quetta and Faisalabad.

Problems of textile industry

- Leaf curl virus which reduces raw materials (cotton)
- Recession in international market so less demand abroad which reduces exports
- Competition from South Korea / Egypt affects exports
- Lack of finance
- Load shedding of electricity and natural gas reduces/delays production
- Lack of government attention which effects development

- Q: What are the advantages and disadvantages of developing the cotton manufacturing industry in Pakistan?

Advantages

- Established industry / good reputation world wide
- Creates jobs / employment so develops skills
- Traditional skills / cheap labor available
- Value added exports / large scale export / main export.
- Higher price (because it is processed / value added)
- Farmers can increase income

Disadvantages

- Lack of money to invest / investors
- Lack of modern skills / education
- Competition from other countries
- Old machinery so more breakdowns, slow, old products (need to import machinery)
- Water shortage for manufacturing / conflict with other users
- Power shortage / power breakdown
- Poor roads and railways / transport to ports
- Government policy / changing policies
- Less land for growing food and other crops
- Problems of pest attack / climate problems/ poor harvest
- Effects of increase in urban population
 - Increase in rural – urban migration.
- Named pollution increases linked to cotton manufacturing
 - Noise pollution as noise of machinery is very loud (may cause deafness)
- Machines will replace manpower so loss of unskilled labor
- Lack of investment in other industries / services

Cement industry

- Limestone, sulfur, gypsum locally available which are the main raw materials
- Coal / natural gas is available as fuel
- High demand in construction industry
 - ... dams, barrages, etc
 - ... bridges, underpasses, roads, etc

- ... lining canals
 - ... houses / factories / hotel, etc
- Pakistan has insufficient timber for construction so use cement in some other parts
 - Because steel industry is small
- Main areas are Salt Range, Karachi and Hyderabad.

Q: Explain the importance of concrete (cement) to the development of Karachi.

- Developing / increasing population / industrialization of offices, housing, ports, roads, etc.
- Used to make infrastructure
 - For better roads for transport
 - For better bridges for easy access
- Stronger building material
 - Which is long – lasting / more durable
 - Which also has a modern appearance.
- Improving slums / squatters

Fertilizer industry

Natural gas as fuel

- Sulfur and gypsum are locally available which are the main raw materials
- Green revolution in agriculture so more demand
 - .. use of HYV seeds thus more chemical fertilizers
- Soil is deficient in nitrogenous matter, so chemical fertilizers provide organic nutrients to soil
- Growing population so more demand of food
- Main areas are Multan, Faisalabad, Mechigot, Haripur

Q: What are the benefits of increasing fertilizer production for the people and economy of Pakistan?

- Higher yield
- More food production rate
- More agricultural exports or improved Balance of Payment
- Reduces imports of fertilizer or improved Balance of Payment
- Higher GDP / GNP
- Less debt
- Higher farm incomes / profit

- More jobs
- Cheaper cost of fertilizer
- More industrial goods (e.g. cotton)

Sugar mills

- Sugar cane abundantly available in Pakistan which is the main raw material
- High demand of sugar in Pakistan due to high population
- Main areas are Peshawar, Faisalabad and Nawab Shah
- Sugar mills must be close to area of sugar cultivation because
 - Sugar cane must be crushed quickly after cutting
 - As it loses its weight rapidly
 - Reduces sugar content rapidly
 - It keeps down transport cost because sugar cane is bulky therefore expensive and difficult to transport.
- Sugar mills work only 160 days a year. This causes the following problems
 - Seasonal employment / unemployment for the rest of the year
 - Skilled workers may be lost to other industries permanently
 - Inefficient use of machinery
 - Machinery deteriorates with lack of use

Solutions

- Casual / unskilled labor migrate to other employment like cottage industries
- Many workers are poor farmers who return to their farms with the extra income earned
- Offer incentives to keep skilled labor
- Some labor may be retained to look after the machines.

By-products of sugar mill and their uses

Bagasse

- Chipboards
- Paper
- Animal fodder
- Fuel
- Electricity

Molasses

- Packaging plastics

- Ethylene (in chemical industry)

Steel industry

Pakistan steel mill Karachi (at Pipri, established with the help of Russia)

- Imported
 - Iron ore
 - Manganese
 - Coal
- Locally produced
 - Limestone
 - Coal
 - Water (Haleji lake)
 - Chromite
- Outputs
 - Pig iron
 - Rolled and cast billets
 - Raw steel
 - Galvanized sheets
 - Coils
- Provides raw materials for engineering and construction industry for heavy mechanical complex Texila

Heavy Mechanized Complex Texila (established with the help of China)

- It is a heavy engineering center.
- Inputs (they are outputs of steel mill, Karachi are imported)
 - Pig iron
 - Rolled and cast billets
 - Raw steel
 - Galvanized sheets
 - Coils
- Outputs
 - Tractors / other machinery for agriculture
 - Machinery / equipment for HEP plants / thermal power plants
 - Boilers
 - Cranes
 - Construction machinery
 - Railway equipment

Brick kiln industry

- Inputs (raw materials)
 - Coal, oil, wood (as fuel)
 - Clay (the main raw material)
 - Water (usually from a tube well)
 - Capital
 - Labor
 - Land
- Processes
 - Digging (the earth)
 - Mixing (the clay and water to prepare paste)
 - Molding (to shape the paste like bricks)
 - Drying (unbaked bricks in sunlight)
 - Baking / heating (the bricks to make them stronger)
- Output
 - Fired bricks

Importance

- Employment for both males and females
- Bricks are used in construction
 - For building houses, offices
 - For building bridges
 - For lining canals
- Shortage of wood in Pakistan / wood is expensive.
 - So bricks are used in flooring to replace wood
- Shortage of steel due to few steel industries
 - So bricks are used in roofing replacing steel/iron
- Cement is expensive so bricks are sometimes used to reduce construction cost

Problems

- Bonded labor
 - Very low wages
 - So labor take loans and are forced to work in the same industry
- It includes child labor
- Expensive fuel
- Air and land pollution

Main areas

- Peshawar
- Potowar Plateau
- Harappa
- Bhakkar

Industrial estates

- Special areas reserved for industries
- Government offers incentives
 - Exemption from customs or imported machinery
 - Tax holidays
 - Electricity / power supply
 - Better roads
 - Private power stations are allowed
 - Simplified procedures
- Examples are:
 - S.I.T.E (Sindh Industrial Trading Estates) Karachi
 - Hattar Texila.
- Why choose industrial estate?
 - Employment
 - Goods for local needs
 - Goods for export
 - Increase in GDP/GNP so increases national income
 - Reduces imports
 - Attracts more investors
 - Development of infrastructure e.g. roads, power, telecommunication
 - Reduces emigration & if in rural areas, reduces rural – urban migration
 - More competition so improves quality of goods
 - Stimulates growth of service industries
- Problems due to industrial estates
 - Cost / lack of investment
 - Lack of skilled labor due to high illiteracy
 - Loss of agricultural land / trees
 - Lack of infrastructure e.g. electricity, roads, water
 - Lack of government support
 - Pollution e.g. water, air, land
 - Need for more imports e.g. machinery, raw materials, oil.
 - Increase in rural – urban migration.

Export processing zones

- Special zones / places reserved for manufacture of export products
- Incentives are offered
 - Tax holidays
 - Exemption on custom duties (import of machinery)
 - Simplified procedure
 - Relaxation in foreign exchange control
- Why choose Export Processing Zones?
 - To increase exports and so to increase foreign exchange

- Promoting industrial developing
- Checking quality
- Attracting investment and experts
- Examples are: Landhi, Karachi and Sambrial, Sialkot

Features of formal and informal sectors of economy

Formal

- Capital intensive
- Employment by institution
- Regular working hours
- Decided wages
- Quality of goods
- Work in offices / factories
- Legal / registered
- Mainly adults / no child labor
- Pension schemes

Informal

- Labor intensive
- Self – employment
- Flexible working hours
- No fixed wages
- Poor quality of goods
- At home
- May not be registered
- Child labor

Q: Explain the advantages and disadvantages of formal and informal labor.

Formal

Advantages

- Guarantee of products
- Warranty available
- Can be replaced quickly
- Fixed timings

Disadvantages

- Expensive

- Not available at odd times
- Fixed prices (non-negotiable)

Informal

Advantages

- Cheap
- No fixed prices (negotiable)
- Availability at different timings

Disadvantages

- No guarantee
- No warranty
- Usually non-replaceable
- May not be available at certain times.

Q: Why is fertilizer industry an example of formal sector?

- Capital intensive
- Fixed timings
- Fixed wages
- Quality goods

Importance of cottage and small scale industry

- Employment
- Women employment
- Fulfills local demands
 - Restricts imports
 - Saves foreign exchange
- Exported e.g. carpets to Saudi Arabia
 - Earns foreign exchange
 - Improves Balance of Payment / Trade
- Reduces rural – urban migration as most of them are in villages
- Development of rural areas e.g roads / electricity

- It suits Pakistan's developing economy as it does not require expensive technology and machines
- Waste of large scale industry can be used to make products here.
- Contributes to GDP / GNP

Problems

- Limited profit
- Economy of scale not achieved
- Lack of quality
- Outdated machinery & methods used
- Wholesalers / middle man makes the most profit
- Electricity not available in many villages so work only in day light hours
- Limited training and technical advice available
- Lack of marketing
- Poverty / lack of finance
- Child labor
- Illiteracy

Steps to improve

- Establishing small industrial estates
- Marketing facilities be provided
- Technical service centers be established
- Pre – investment counseling and guidance
- Loans on easy installment to purchase machinery
- Rural electrification
- Provision of roads from industries to markets for easy purchase of inputs / easy sale of products
- Handcraft development centers have been established
- Organizations like PSIC, SSIC, etc have been established
- Tax breaks to reduce financial burden
- Dry ports for exports from inland cities
- Telecommunication improvements for better contact with the market
- More use of machinery
 - Thus more value – added goods so more profits

Examples of cottage & small scale industries

- Carpets
- Wood carving
- Embroidery
- Jewelry
- Sports goods
- Surgical goods

Q: Explain the importance of mechanization to the craft industry and other small scale industries of Pakistan

- Faster
- Larger production
- Lower labor cost / cheaper
- Less work / easy / less tiring
- Standardized product / better quality.
- Can replace child labor
- New skills earned

Secondary industry and environment

It produces

- Air pollution due to smoke
- Water pollution due to poor disposal of industrial waste in rivers, lakes, etc
- Noise pollution due to noise of machinery
- Land pollution when industrial waste is dumped underground

Effects

- Diseases e.g. deafness, diarrhea
- Contamination of sub soil water effects food crops and supplies of drinking water from wells
- Industrial waste harmful for irrigation of crops
- Threat to marine life e.g. fish due to polluted water
- Threat to mangroves due to polluted water

How to control

- Awareness campaigns e.g. NGO's should cooperate
- Protests / show of concern by public
- Strict enforcement of environmental laws
- Water treatment plants be installed to purify water
- Green trees be planted to reduce air pollution
- Industries should be established away from residential areas

Tertiary Industry

- Service sector e.g. public administration, defence, tourism, etc
- Tourism means the whole business of providing accommodation and recreation facilities for those who are traveling, staying or visiting a place for a relatively short period of time, primarily for pleasure seeking.

Advantages

- Invisible export therefore helps to earn foreign exchange which improves *Balance of Payment*
- Source of employment for different people like tourist guides
- It helps to improved local areas infrastructures e.g. electricity, roads, water, sanitation, etc
- Provision of other modern facilities e.g. shops
- Local tourists can utilize the facilities
- Development of cottage industry e.g. souvenirs
- Cultural linkage
- Reduces rural – urban migration because many tourists resorts are in rural areas
- Sustainable industry

Disadvantages

- Expensive to develop as Pakistan is a developing country
- Seasonal employment like tourists (winter or summer or spring, etc)
- Local culture destroyed
- Foreign tourists sometimes do not respect locals and their customs
- Litter / garbage (air and land pollution)
- Resettlement of local people
- Natural habitat destroyed due to deforestation
- Facilities may not be affordable for local tourists
- Locals may lose their traditional jobs
- Political situation and security situation (threat)

Tourist attractions

- Natural tourist sites e.g.
 - Kaghan, Swat, Gilgit, Skardu, Hunza, Chitral
- Archeological
 - Moen – jo – daro, Badshahi Mosque, Shalimar Gardens
- Modern buildings
 - Faisal mosque, the Parliamentary building in Islamabad.

