Chapter – 4: Industries

- Notebook – you use – long manufacturing process
- Start its life – part of tree – cut down – transported to pulp mill
- Wood of tree – converted to wood pulp – mixed with chemicals – changed into paper
- Paper – transported to press – ink made of chemicals used – print lines
- Pages – bound together – form note book – packed – sent to market
- **Secondary activities** – manufacturing – raw materials to finished products
- Above example – pulp to paper – paper to note book
- Paper (made of pulp) – cloth (made of cotton) – added value
- Finished product – more value than – raw material
- **Industry** – economic activity – production of goods, extraction of minerals, provision of services
- Iron and steel industry (production), coal mining industry (extraction), tourism industry (service provider)

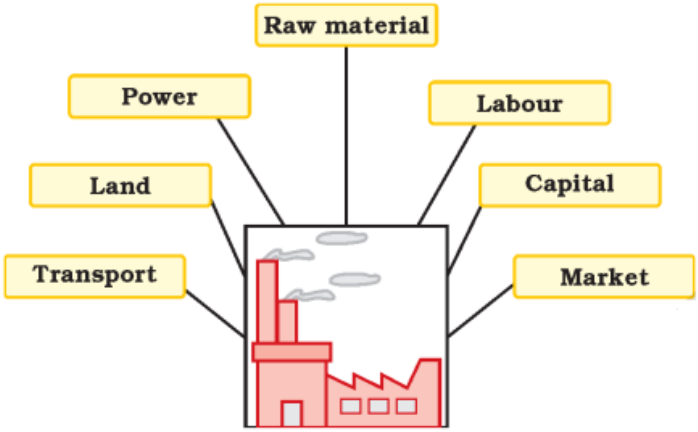
Classification of Industries

- Classified based on – raw materials, size, ownership
- Raw materials –
    - Agro based –
        - Plant and animal-based products – raw materials
        - Food processing, vegetable oil, cotton textile, dairy products, leather industries
    - Mineral based –
        - Mineral ores – raw materials
        - Products – these industries – raw material for others
        - Iron – made from iron ore – product of this industry – used in other industries – heavy machinery, building materials, railway coaches
    - Marine based –
        - Sea and ocean products – raw materials
        - Fish oil manufacturing, sea food processing
    - Forest based –
        - Forest produce – raw materials
        - Paper, pharmaceuticals, furniture, building industries
- Size –
    - Refers to – amount of capital (finance), number of people, volume of production
    - Small scale –
        - Cottage or household industries
        - Manufacture of products – small scale – done by hands, artisans
        - Basket weaving, pottery, other handicrafts, silk weaving, food processing
        - Lesser investment, less technology
    - Large scale –
        - Higher productions, higher investment, superior technology
        - Automobiles, heavy machinery productions
- Ownership –
    - Private sector –

        - Owned, operated by – individuals or group of individuals
    - Public sector –
        - Owned, operated by – govt.
        - Hindustan Aeronautics Limited (HEL), Steel Authority of India Limited (SAIL)
    - Joint sector –
        - Owned, operated by – state (govt.) and individuals
        - Maruti Udyog Limited
    - Co-operative sector –
        - Owned, operated by – producers or suppliers – raw materials, workers or both
        - Anand Milk Union Limited (AMUL), Sudha Dairy

Factors Affecting Location of Industries

- Factors – availability of raw material, land, water, labour, power, capital (finance), transport, market
- Industries – situated in areas – some or all of these – available
- Sometimes – govt. – provides incentives – subsidized (lower rates) power, lower transport cost, other infrastructure – industries – located in backward areas
- Industrialization – leads to development and growth – towns and cities



Industrial System

- Consists – inputs, processes, outputs
- Inputs – raw materials, labour, land, transport, power, infrastructure
- Processes – convert – raw materials into finished products
- Outputs – end product – income from it
- Textile industry –
    - Inputs – cotton, human labour, factory, transport cost
    - Processes – ginning, weaving, dyeing, printing
    - Output – processed shirt

Industrial Regions

- Regions – lots of industries – close to each other – benefit from their closeness
- Major industrial regions – eastern North America, western and central Europe, eastern Europe, eastern Asia
- These regions – located near – temperate areas, sea ports, coal fields

- India – several industrial regions – Mumbai-Pune cluster, Bangalore-Tamil Nadu region, Hugli region, Ahmedabad-Baroda region, Chottanagpur industrial belt, Vishakhapatnam-Guntur belt, Gurgaon-Delhi-Meerut region, Kollam-Thiruvananthapuram industrial cluster

Industrial disaster

- Industries – accidents – occur due to – technical failure – OR – irresponsible handling
- On such accident –
    - One of the worst industrial disasters – Bhopal – 3rd December 1984
    - Technological disaster – gases leaked – Methyl Isocyanate (MIC), Hydrogen Cyanide, etc – highly poisonous
    - Gases leaked from – pesticide factory – Union Carbide
    - Official death toll in 1989 – 3,598
    - Those who survived – suffer – many ailments – blindness, unhealthy immune system, gastrointestinal disorders, etc
- Another accident –
    - 23rd December 2005 – Gao Qiao, Chongging, China – gas well blowout
    - 243 died – 9000 injured – 64,000 evacuated
    - Many died – reason – cannot run away – after explosion
    - Those – cannot escape – suffered burns – eyes, skin, lungs, etc

Risk reduction measures

- Residential areas – far away from industrial areas
- People – near industrial areas – aware of – toxins or hazardous substances – AND – possible effects
- Fire warning and rescue system – improved
- Storage – toxic substance – limited
- Pollution dispersion (removal into environment) – improved

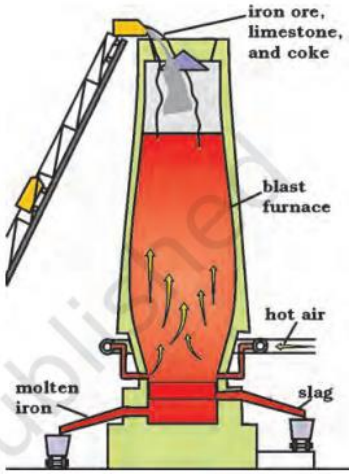
Distribution of Major Industries

- Major industries – iron and steel, textile, information technology
- Iron and steel, textile – older industries – information technology – new industry
- Iron and steel industry – Germany, USA, China, Japan, Russia, India
- Textile industry – India, Hong Kong, South Korea, Japan, Taiwan
- IT industry – Silicon Valley, California – Bangalore, India

Iron and steel industry

- Various inputs, processes, outputs – like other industries
- This industry – feeder – products from here – used as raw material – other industries
- Inputs – raw materials – iron ore, coal, limestone – labour, capital (finance), factory, etc
- Process – iron ore to steel – many stages
- Raw material – put in blast furnace – smelting (heated beyond melting point) – then refined – output obtained – steel
- 8 tonnes coal + 4 tonnes iron ore + 1 tonne limestone = 1 tonne steel
- Steel – tough – easily shaped, cut, made into wire
- Special alloys of steel – made with – aluminium, nickel, copper

- Alloys – provide – hardness, toughness, ability to resist rust
- Steel – backbone – modern industry
- Almost everything – made of iron and steel – OR – made with tools – made of these metals
- Ships, trains, trucks, autos, safety pins, needles – made from steel
- Oil wells – drilled with steel machinery – transported using steel pipelines
- Minerals – mined with steel machinery – farm machines – made of steel – large buildings – steel framework
- Before 1800 A.D. – industry located – raw materials, power supply, running water – easily available
- 1800-1950 – ideal (best) location – near coal fields, railways
- After 1950 – ideal location – flat lands – near sea ports
- By this time – iron and steel industry – increased production – raw material – imported from overseas
- India – this industry – developed – advantage – raw materials, cheap labour, transport, market
- 4 states – West Bengal, Jharkhand, Odisha, Chhattisgarh – major steel centres – Bhilai, Durgapur, Burnpur, Jamshedpur, Rourkela, Bokaro
- Other regions –
    - Bhadravati, Vijay Nagar – Karnataka
    - Vishakhapatnam – Andhra Pradesh
    - Salem – Tamil Nadu



Jamshedpur

- Before 1947 – only one iron and steel plant – Tata Iron and Steel Company Limited (TISCO) – owned privately
- After independence – govt. – set up several iron and steel plants
- TISCO – started 1907 at Sakchi – near confluence (meeting) of Subarnarekha, Kharkai – Jharkhand
- Geographically – Jamshedpur – most conveniently (best) situated iron and steel industry
- Sakchi – chosen – several reasons –
    - Only 32 km from Kalimati Station – Bengal-Nagpur railway line
    - Close to iron ore, coal, manganese deposits
    - Close to Kolkata – major market
- TISCO – raw materials –
    - Coal – Jharia coalfields
    - Iron ore, limestone, dolomite, manganese – Odisha, Chhattisgarh
    - Sufficient water supply – Subarnarekha, Kharkai river

    - Govt. initiatives (help) – sufficient capital (finance) – further development
- Jamshedpur – several other plants – chemicals, locomotive parts, agriculture equipment, machinery, tinplate, cable, wire
- Development of iron and steel industry – industrial development in India
- All major industries – depend on – iron and steel industry
- This industry – large integrated steel plants – also – mini steel mills
- Also includes – secondary producers – rolling mills, ancillary (helpers) industries

Pittsburgh

- Imp. steel centre – USA – locational advantages
- Raw material –
    - Coal – available locally
    - Iron ore – iron mines, Minnesota – 1500 km away
        - Between mines and Pittsburgh – world's best route – cheap shipping – Great Lakes waterway
        - Trains carry ore – Great Lakes to Pittsburgh
    - Rivers – Ohio, Monogahela, Alleghany – water supply
- Now a days – very few large steel mills – located – valleys – Monogahela, Alleghany rivers – along Ohio river
- Finished steel – transported to market – land and water routes
- Many other factories – railroad equipment, heavy machinery, rails