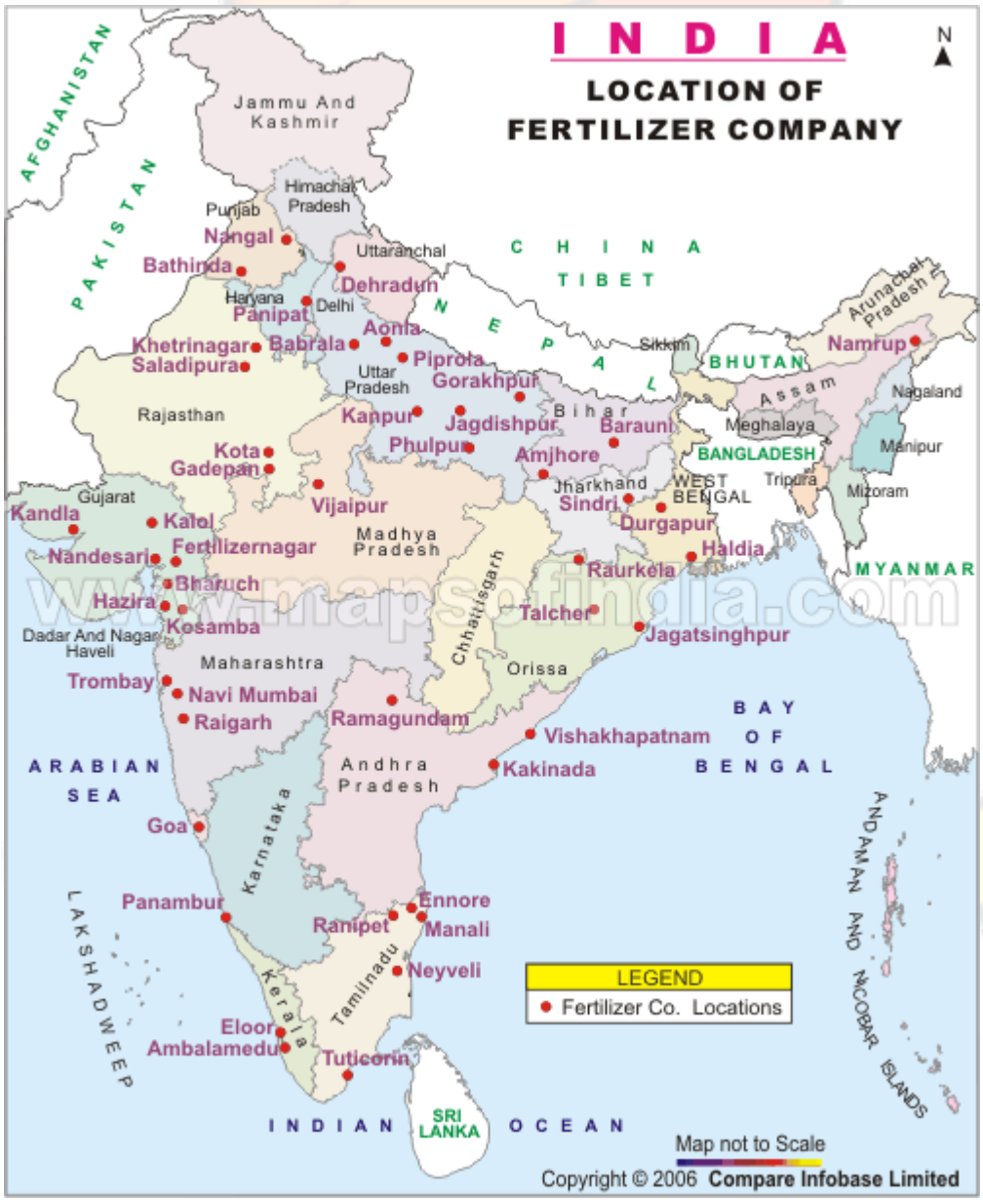
1. Discuss the locational factors of fertiliser industry. Why are fertiliser plants mostly located near natural gas sources? Explain.

Introduction:

Industries have affinity towards particular locations. Of course, availability of raw material is one of the major reasons, but that is not the sole determinant. Apart from common factors of all industries like power, transportation, labour availability, etc, there are few locational factors that help setting up of fertiliser industries.

Body:



Locational factors of fertiliser industry:

- **Presence of oil refinery**: About 70% of the plants producing nitrogenous fertilizers use naphtha as the basic raw material. Example: Gujarat-Maharashtra region fertilizer plants at Hazira, Mumbai, Trombay, Vadodara etc.
- **Proximity to natural gas source**: For the production of Urea and nitrogen based fertilizers, natural gas is a necessity.
- **Presence of Iron and steel industry in the vicinity:** Some fertilizer plants draw their feed stock from steel slug as well as coke and lignite.
- **Pipeline infrastructure**: During the recent years transportation of Naphtha or Gas through rail or pipelines has facilitated the widespread distribution of fertilizer plants with priority to seaboard location. Example: Hazira-Bijaipur-Jagdishpur (HBJ) pipeline and subsequent fertilizer industry in Bijapur, Sawai Madhopur, Shahjahanpur etc.
- **Port facilities**: Some fertilizer plants import phosphate, potash etc. Many fertilizer plants export their produce to other countries via sea ports and pipelines.
- **Raw materials**: Availability of mineral phosphate, raw potash material etc. Example: Florida, North Carolina, Utah and Idaho; India: UP, MP, Rajasthan.

Reasons for locating fertiliser plants near natural gas sources:

- **Essential feedstock:** Fertiliser plants use major part of gas as feedstock, unlike power plants which burn it as fuel. When gas is burned as fuel, all carbon in natural gas is converted to carbon dioxide and emitted into the atmosphere. But in case of fertiliser, carbon dioxide is converted into urea and not emitted to the atmosphere.
- **Efficient fuel:** Natural Gas offers various benefits like higher thermal efficiency, minimal gestation period, and higher plant load factor, lower capital costs and has the least emission for local and global environment. It is lighter than air, therefore is a safe fuel to use.
- **Clean mechanism:** Methane is 25 times stronger than carbon dioxide as a greenhouse gas. Thus, there is elimination of methane production. Additionally, producing biogas through anaerobic digestion reduces odours and produces nutrient-rich liquid fertilizer.

Challenges:

- Need for a stable and all inclusive policy formulation.
- Giving a boost to domestic production based on reasonable gas costs, by removing all regulatory hurdles and ensuring sufficient gas requirements.
- Encouraging bio-fertilizers and organic fertilisers.

Conclusion:

Fertilizer industry is not only a significant market in terms of size, but also an essential industry serving global food production. With a stable and streamline policy for Fertilizers, Joint ventures with countries well-endowed with resources for

fertilizer production, India can have a robust fertiliser industry and meet its agricultural and food security needs.

2. Examine the factors responsible for development of plantations in Asia and America.

Introduction

Plantation agriculture is confined within tropical areas, i.e., both sides of the equator. Plantations exist on every continent possessing a tropical climate. The plantation system however is considerably older in tropical America than in Asia and Africa. The tropical areas of Latin America, Asia and Africa are the areas where plantation agriculture has been developed.

Crops:

- **Tree crops**: rubber, coconut, areca nut, oil palm, teak, avocado.
- **Perennial shrubs:** coffee, tea, bananas, sugar cane, cocoa, cashew nut, almond, pistachio, macadamia.
- **Perennial wines:** grapes, vanilla, black pepper, betel vine.
- **Spices:** cardamom, pepper, and other spices
- **Annual crops:** sugar beets, cassava, sweet potato, pine apple potato, pepper, and tobacco

Body

Countries and plantation farming:

- **Coffee plantation** in Brazil, Paraguay and Bolivia, Tanzania, Kenya.
- **Sugarcane plantation** in Cuba, Brazil, Peru, Puerto Rico and Philippines.
- **Tea plantation** in India, Sri Lanka, Indonesia.
- **Cocoa farming** in West Indies, Ecuador, Brazil, Nigeria, Ghana.
- **Rubber plantation** in Malaysia, Indonesia, Thailand, Sri Lanka, Cambodia, Myanmar, India.
- **Banana plantation** in Mexico, Jamaica, Columbia, Brazil, Panama and Costa Rico.

Factors responsible for development of plantations in Asia and America:

- **Cheap labour:** Colonies utilizing cheap and plentiful local labour. After independence most of the plantations were distributed among the local farmers.
- **Capital:** Finances were made by European powers during colonization time.
- **Large labour:** Due to the large size of a plantation, a lot of labour is needed to tend to the crops and work in the nearby processing factories. Most of them are permanent labourers housed near the plantations and taken care of by the plantation owner. For example in Malaysia's large rubber plantations, many workers are hired to tap latex from rubber trees, and in India for plucking tea leaves in tea plantations or coffee berries in coffee plantations

- **Climate:** Most of the plantation crop requires less temperature and rainfall of 150-250mm. And also characterizing high, constant temperatures with small daily variations, ample rainfall, well-distributed throughout the year well-drained late rite soils.
- **Topography:** Water Stagnation is very harmful for Plantation Crops. Hilly and terrace type of areas are much suited as seen in Asia and America.
- **Foreign estate farming:** The farming is owned by the foreign state and the labour employed for the farming is local. For example Cocoa and coffee farms in Cameroon and Ivory Coast of Africa are owned by the French states.
- **Transport:** The produce may be processed on the farm itself or in nearby factories. The development of a transport network is thus essential for such farming.
- **Single crop culture:** Export-oriented specialised farming method where emphasis is given to raise a single crop – specially meant for export to the overseas countries
- **Others:** Protectionist policies and natural comparative advantage (consume less and give more) have sometimes contributed to determining where plantations were located.

Conclusion

All forms of agriculture are controlled largely by temperature. Areas deficient in heat are deficient in agriculture. For that is one element of climate that man has not been able to create at economic costs on a large scale. Temperature determines the growth of vegetation through determining the length of the vegetative period

3. Milk and dairy industries are highly developed in the USA, Europe and New Zealand? Why? Also, explain their distribution in these locations.

Introduction

India is the largest producer of milk followed by United States of America and China. Operation Flood, known as the 'billion liter idea,' as conceived by Dr Verghese Kurien made the dairy farming India's largest self-sustaining industry and the largest rural employment provider.

Body

Distribution and Factors Influencing Dairy Industry:

Only a few geographical areas have concentration of scientific dairy industry. It is more visible within temperate region. Though, recently, some tropical countries like India are also coming up at a tremendous speed.

Factors for the Growth of Dairy Industry:

Several favourable factors in unison played positive role in the overall development, of dairy industry in the **U.S.A.:**

- Vast expense of grazing land.
- Advancement of mixed farming that minimizes risk in dairy.
- Export facilities through ports.
- Speedy transportation of the perishable milk items.
- Huge capital, government assistance, and internal demand of the milk products.
- Location: At least 30 states produce dairy products. Among these, New York, Pennsylvania, Texas, New Mexico are forerunners in milk production.

Europe:

- Traditional expertise of dairy and livestock ranching.
- Availability of grassland and less competition from agriculture.
- Ample scope of special breeding and research activities.
- Huge internal demand and export facilities.
- Denmark, Holland, France, Switzerland and U.K.(Lancashire, Yorkshire and Scottish lowland areas) are famous for dairy industry.

New Zealand:

New Zealand produces a substantial amount of milk and milk products. Productivity of the cows are also very high i.e. over 5,000kg/cow/year—about 14 litres/cow/day.

- New Zealand has cold and humid climate, low undulating plains which provides luxuriant, perennial growth of nutritious grass.
- It makes grazing possible throughout the year which makes fodder costs cheaper.
- Geographically, New Zealand is located far away from the market of milk products. So, Liquid milk is converted into such as butter, cheese and powdered milk/ It has benefits such as
- Longer shelf life, can products withstand long sea journey.
- Higher value per unit product (compared to liquid milk)
- Co-operative farming : Fonterra, a co-operative is responsible for 30% of the world's dairy exports. For a nation of just under 4.5 million, New Zealand's dairy exports performance is startling. It is the world's largest exporter of butter and second only to the EU in cheese exports.

In New Zealand, dairy industry is more developed within Taranaki Plain, Auckland region and Canterbury region.

Conclusion

Though India is the highest producer of milk in the world, It lags behind in productivity levels. Milk and Dairy sector has a crucial role to play in achieving Government's goal of Doubling Farmers income by 2022.

4. What are those factors that make China the top silk producer in the world? Discuss.

Introduction

China is the world's largest silk producer. The vast majority of Chinese silk originates from mulberry silkworms. According to International Sericultural Commission, China accounts for 75 percent of global raw silk production and 90 percent of the world export market.

Body

Factors that make China the leading producer include:

- **Climate Conditions and Industrial location**: Temperate and Tropical climate conditions along with heavy rainfall are suitable for growth of unvoltine, bivoltine and polyvoltine silk varieties. (Tropicalisation and popularisation of bivoltine sericulture has been a challenge for India). Lower Yangtze valley is one of the finest region for white mulberry silk. Its proximity to Shanghai textile industries has been an advantage.
- **Technology**: The Chinese scientists have developed hybrid varieties using European and Japanese silkworms, which makes it possible to rear silkworms' up to seven times a year.
- **Labour**: Chinese were the first country to start sericulture and they have abundant skilled personals.
- **Innovative Practices**: They have started integrating sericulture with fish rearing (Silkworm and their waste is fed to fishes). This adds to the income growth and attracts more number of people into this business. Regions such as Pearl River valley.
- **Government Support**: Sericulture has been done through cooperatives (Silk Communes) this ensures efficient and standard production as compared to individual farmers. Government here also provides incentives such as training, project prioritization, land policy exemptions, energy discount, and tax breaks etc.
- **Better export promotion policies** have ensured better return on investments and better quality protection has ensured trust on Chinese silk.

Conclusion

India stands at second position in terms of silk production. India's silk demand is greater than its production, there exists huge scope for improvement in productivity. With potential to generate huge employment especially for women, improving income of farmers and in preserving the biodiversity makes sericulture one good viable option in India.

5. What are the major hotspots of the automobile industry in the world? How is the distribution of these centres changing? Analyse.

Introduction:

The Automotive Industry is an important segment of the global economy, and its performance often tracks that of the broader business cycle. According to international estimates, the average annual turnover of the world automobile industry is more than $3 trillion, which corresponds to 3.65% of world GDP

Body:

The major hotspots of the automobile industry in the world:

- **US -** General Motors, Ford
- **Germany-** Mercedes, Audi, BMW, Porsche, Opel, Volkswagen
- **Italy-** Fiat, Alfa Romeo, Ferrari
- **Great Britain -**Aston Martin, Bentley, Jaguar
- **Japan-** Toyota, Honda, Suzuki
- **South Korea-** Hyundai, Kia Motors, Renault.
- **Canada-** Bombardier, Intermeccanica.

Currently, the industry is booming, involving an increasing number of countries in the production of cars. Now the development of the country's economy is difficult to imagine without the development of the automobile industry.

Factors affecting the changing pattern of Automobiles Hotspots:

- **Raw material:** Availability and the prices of key raw materials, such as steel iron, aluminium, plastic and computer chips decide the location of Industry. Now China, India and Japan are the largest sources of steel worldwide.
- **Workforce:** The cost of labour has a big impact on competitiveness and profitability. North American and European manufacturers are heavily unionized and this affects the industry's health. Asian countries in general and India and China, in particular, are providing skilled labour force at cheaper rates.
- **Oil price:** The price of gasoline (and diesel fuel) is an important factor influencing the demand. Now the emergence of Electric and hybrid vehicles are shifting the production and usage pattern.
- **Environmental norms:** Greening is getting more expensive as Carbon dioxide regulation is likely to continue to tighten, and developed countries like Germany, France, China, the US, and Japan have a higher burden of reducing industrial emissions, so they are shifting the production units to developing countries.
- **Advance technology:** Conventional production of Petrol-fueled car becoming a thing of the past. The industry is moving towards cars that will soon be

interconnected, electronically controlled and fueled by a range of energy sources. This is leading to the rise of new players such as China and South Korea, as they have an advantage in the electronics sector.

- **Globalization effects:** Availability of workforce and raw material across the boundaries at no or low tariff rates has also shifted the manufacturing hotspots.
- **Demand:** Production centres are being established in developing countries due to increased purchasing power and higher demand for cars. Earlier consumption was only in developed countries.
- **Relaxed Import-export norms**: Due to relaxed import-export norms, Assembly units are established in countries after importing parts from OEM countries.

Indian automotive industry:

- Indian automotive industry is the fifth-largest in the world and expected to become the fourth largest automobile producer in the world by 2020.
- Biggest two-wheeler market across the globe.
- By 2026, India expected to be the third-largest automotive market by volume.
- 100% Foreign Direct Investment (FDI) is allowed under the automatic route in the auto sector, subject to all the applicable regulations and laws.
- Geographically, India is close to the major automotive markets of Europe, ASEAN, Japan and Korea.
- The cost competitiveness of steel is the main incentive to foreign investors. India is the fourth-largest producer of steel in the world.
- Presence of four large auto manufacturing hubs across the country: Delhi-Gurgaon-Faridabad in the north, Mumbai-Pune-Nashik-Aurangabad in the west, Chennai- Bengaluru-Hosur in the south and Jamshedpur-Kolkata in the east

Conclusion:

Initiatives like Make in India, Skill India, and Invest India are the steps in the right direction to distinguish India as a top player in global manufacturing, especially the automotive industry. This labour-intensive industry will provide more employment opportunities and could play an important role in the country's socio-economic development, ultimately turning India into a $5 Trillion Economy by 2022.