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Geography (UACE 250/2) paper 2 Development of transport in the world

Transport is the physical movement of people and commodities from one place to another.

Types of Transport

Road transport

Advantages of road transport

- Cheap in terms vehicles and road construction.
- Flexible in that it can easily pass anywhere and can make door to door delivery.
- Maximum traceability: GPS and new fleet management software make it easy to always locate and track goods.
- Compared to sea or air transport, the paperwork involved in road transport is much simpler. The time spent at customs or on delivery of the goods is much shorter, streamlining the business supply chain.

Disadvantages of road transport

- High accident rate.
- Load less capacity.
- Delayed by Jam.

Road transport in selected regions/countries

Trans-African Highway

It is about 6,500km long and runs from Mombasa through Uganda, DRC, Republic of Congo, and Central African Republic to Lagos in Nigeria.

South African

Has a well-developed transport network than any other road network in the whole of Africa.

It has major roads connecting the country with the neighboring countries such as Zimbabwe, Namibia, Lesotho, Mozambique and Botswana. There are also major road networks connecting major towns like Johannesburg to Cape Town, Port Elizabeth, East London and Durban

Zambia

Zambia is a land locked country therefore there is great importance attached to roads. It has major road network linking it up with neighboring countries such as Angola, Tanzania, Democratic Republic of Congo, Mozambique and Zimbabwe For instance Lusaka – Harare, Lusaka – Lilongwe; Lusaka – Mbeya; Lusaka – Gaborone, etc.

Railways transport

Advantages

- Carry heavier loads compared to road transport.
- Cost effective
- Reliable due to standardized schedules.
- Low accident rate compared to the road transport.

Disadvantages

- Require huge capital to setup.
- Does not carry out door to door delivery.
- Not economical for small load and short distances.
- Not flexible.

Rail transport in selected regions/countries

Nigeria.

The South and Central Jos plateau have more railways. The West and the South East have poor railway network .The railway network joins the Worthier town of Kano-Sokoto-Jos-Abuja-Makudi etc. to the southern towns / ports of Ibadan, Lagos, Port Harcourt., Enugu etc.

Zambia.

The railway network is concentrated in the North-East along the border with DRC and in the South along the border with Zimbabwe. The railway line connects Lusaka, the copper belt towns to Dar-es-Salaam in Tanzania, Maputo in Mozambique and Luanda in Angola.

South Africa

South Africa has the most developed railway network in Africa linking most of its important urban areas such as Johannesburg, Pretoria etc.

The Tazara railway links Zambia to Dar es Salaam

Factors that favor the development of road/railways

- Historical factors i.e. influence of first settlers or colonial influence. Roads were developed for effective administration.
- Presence of raw materials such as minerals, forestry, agricultural raw materials that require transport to the industries.
- To ease access to tourism sites such as national parks, waterfalls etc.
- Favourable government policy towards transport development.
- The need to facilitate dissemination of social services.
- The need to facilitate administration of the country.
- The need to open up remote areas for development.
- High level of technology.
- Presence of capital to invest in roads and railway networks.
- Plenty of skilled and semi-skilled labour force to work on road and railway projects.
- Favourable relief.
- Presence of commercial activities.
- Availability of vast land.
- Presence of dense population /urban centres.
- Political stability.
- Presence of research.
- Presence of alternative means of transport like water, air, railway that need to be linked up.

Contributions of road transport

Positive Contributions

- It opens up remote for trade and the Service industry.
- Promotes international trade enabling imports and exports in the country.
- Promotes the development of urban areas leading to provision of accommodation, intellectual and health services thus improving people's standards of living.
- Promotes development of industries through facilitation of raw material transportation.
- Promotes agricultural development through improved transportation inputs to the farms and outputs to the market.
- Encourages settlement along the road sides.
- Promotes tourism which is a source of foreign exchange used for development of a country.
- The transport strengthens international Cooperation by enabling trade.
- Source of government revenue used for development through taxation (customs) and fees Charged on vehicle and fuel used in these vehicle.
- Leads technological development such as vehicle mechanic, development of roads, railways, water canal and airports.
- Transport means stimulate exploitation of natural resources e.g. minerals, fisheries, forestry etc.
- Transport stimulates provision of social services such H.E.P, health care and education

- Transport means lead to creation of employment to people of different categories such drivers, road engineers, ship builders, air craft builder etc.
- Transport ways form boundaries between local and international administration units.

Negative contributions

- Urban development lead to Congestion, increased crime rate, poor hygiene etc.
- Pollution from oil spills, gaseous emissions in urban centres affecting both aquatic life and man.
- Involve high costs of maintenance of roads, railways, ports, airports.
- Construction of canals, dams on water ways affects aquatic life like salmon fish along the water ways have affected the fishing industry.
- Transport vehicles cause accidents leading to loss of property and life.
- Improved transport leads to over exploitation of resources such as minerals and forestry threatening future uses.
- Construction of roads, airports, water canals lead to displacement of people, loss property and heavy compensation from government.
- Have led to regional imbalances in development between areas along roads, railways and water canals and those distant away thus affecting balanced economic development.

The problems facing road and railway transport in Africa.

- Harsh climate such as too much rainfall where water runoff destroy roads and railways.
- Political unrest or insecurity in Nigeria, Somalia and so on destabilizes the process of building and rehabilitating of railway lines.
- Poor technology limits building and modernization of road and railways networks.
- Competition with other forms of transport like roads which are highly flexible has limited development of railway lines in Nigeria and Zambia.
- High costs of construction and maintenance of roads and railway networks limit their development in poor countries like Zambia, Nigeria etc.
- Limited skilled labour in form of engineers to construct and maintain the roads and railway lines.
- Thick forest vegetation in the tropics discourage roads and railway constructions.
- The rugged-landscape in Nigeria and other countries makes construction of roads and railways difficult.
- Lack of economic activities in some areas makes construction of roads and railways unprofitable.
- Poor drainage leads to destruction of roads and railways.
- Unfavorable government policies such as over taxation of railway transport investors have limited the number of investors in railway transport.
- Due to its slow nature of railway transport is not viable for perishable goods.

Inland Water transport

Advantages:

- Low Cost of construction and maintain of water compared to roads and railway transport routes.
- It provides much more flexible service than railways and can be adjusted to individual requirements.
- It can carry much larger quantities of heavy and bulky goods such as coal, and, timber etc.
- It has low risks of accidents and breakdowns.

.Disadvantages:

- Very slow speed makes it unsuitable for perishable good.
- Can only be applied to deep canals, rivers and/or lake.
- Some rivers are seasonal.
- Unsuitable for Small Business.
- Affected by piracy.

Selected Countries with well-developed inland water transport

CHINA

China has many inland navigable water courses by rivers, canals, etc. The navigable rivers include: Hwang Ho, Yangtze, Mekong, Hong-Kiang, Si-Kiang, Wei-Ho etc.

Canals include: - the Grand Canal that joins the North to South China, the Peh - Kiangsu joining the western to the Eastern part of China. Both canals connect to the Pacific Ocean.

U.S.A

It has a well-developed inland water system. Examples include

- The St Lawrence Seaway which connects the great lakes region to the Eastern sea board of USA.
- The Missouri-Mississippi inland water system which links the mid-west to the Gulf of Mexico.
- The River Sacramento system in the west.
- The rivers are supplemented by canals such as the Welland canal, the Marie-salt canal, Soo canal, Mendota canal, the Friant canal, the State Berge canal, etc.

Western Europe

- The Rhine waterway which links the countries of the Rhine lands i.e. Switzerland, Germany, Belgium, Luxemburg, Netherlands to the North Sea.
- The Rhone waterway which connects the southern parts of Western Europe to the Mediterranean Sea.

- Canals e.g. Dortmund, Ems canal Lipesite canal, Mossel which connects to the Lorraine Iron ore fields in France etc.

The measures being taken to improve inland water transport

Steps being taken to improve water transport in USA

- Widening or enlargement of the sea way at the Sault, St Marine canal to accommodate more traffic and collect more revenue from the vessels using the Seaway.
- U.S.A and Canada have begun deepening of the existing shallow waters examples at Sault, St. Marine canal and lower St. Lawrence sea way to accommodate bigger ships and collect more revenue
- Constant dredging is done along the Welland canal, Suds burg and Trois-Riviere to control siltation and encourage smooth utilization of the seaway.
- There is construction of embankments and dams to control floods along the Sault Ste Marine canal, Beauharnois and Barnhart so as to encourage settlement along the seaway.
- There has been blasting of rock/islands along the Sault Ste. Marine and near Beauharnois near the river braiding so as to reduce accidents due to collision with rocks and also enable use by big strips.
- There has been construction of canals e.g. State Berge canal, Welland canal, Soo canal to avoid rapids and water falls and to increase the size of the hinterland so as to handle more traffic along the sea way.
- There has been construction of gates at the Soo canal, Sault Ste. Marine canal, St Lambert Lock at Montreal to control traffic congestion
- There has been development of modern port facilities at Kingston, Quebec, and Montreal to handle traffic and merchandise.
- There has been introduction of ice breaks on the seaway during winter (Dec-March) to remove the frozen snow or ice to make the sea way operational throughout the year.
- There has been straightening of river courses and canals e.g. Grenville canal to minimize distance and costs along the Seaway.
- There has been introduction of containerization to ease transportation, handling, loading and packaging of merchandise to effectively utilize the available limited space.
- There has been construction of roads and railways to link the port and hinterlands to reduce overdependence on the St. Lawrence sea way.
- There has been development of industries along the sea way to handle imports and exports e.g. at Pitts burg, Detroit, Chicago etc.
- There has been recruitment of many traffic wardens and police to control traffic flow as well as stamp out piracy and insecurity along the seaway.
- There has been construction of twin Locks to create a navigable (deep) water level along the seaway so that bigger ships can use the seaway and increase the revenue collected from the vessels.

- There has been improvement in lighting systems to improve on visibility so as to encourage smooth flow of traffic and reduce accidents along the seaway.
- There has been mobilization of funds to maintain the seaway by constructing canals, dams, locks to control water level enlargement and dredging to deepen the channel for use by big ships by both Canada and USA.
- Effective planning and time tabling to enable easy movement of cargo.
- Reduction in river utilization tariffs to promote inland water transport
- Promotion of regional and international cooperation for better management of shared inland water resources.
- Promotion of economic activities in the hinterland areas to avail cargo and humans for transportation e.g. trade, agriculture, mining, tourism, manufacturing industries etc.
- Weather forecasting and warnings e.g. on typhoons, hurricanes, frost etc.

Importance of Inland Water Transport in USA

Positive Contributions

- The Inland water ways have opened up remote areas like the prairie provinces of Alberta, Saskatchewan, for trade and the Service industry.
- Promoting international trade by handling both exports such as wheat, timber, iron and imports like oil from, the Middle East.
- Have led to the development of towns or ports such as Duluth, Chicago, and Detroit that promotes easy provision of social services.
- Promoted development of industries through facilitation of raw material importation such as crude oil for petro-chemical industries, oil refineries at Chicago, Duluth and Quebec etc.
- Promoted agricultural development through improved transportation agricultural inputs and outputs.
- Promotes tourism which is a source of foreign exchange.
- The water way has strengthened international Cooperation between U.S.A. Canada and other countries that use the Seaway for trade such as China
- Source of foreign exchange from taxation of imports and exports.
- Source of government revenue used for development through taxation of workers on the Seaway such as traffic wardens, ship captains, managers etc.
- Have led to technological development such as Marine technology and construction of canals, Locks, loading and offloading, containerization etc.
- Stimulated exploitation of natural resources e.g. iron ore from the Messabi ranges, timber from British Columbia in Canada leading to development of the states where it's done.
- Stimulated generation of H.E.P for example at Iroquois dam, Burn hart dam, Long Sault dam that promotes industrialization.
- Created different forms of employment for tax collectors, traffic wardens, freight (vessel) captains, police and so on.

- The water ways have facilitated development of other forms of transports e.g. roads, railway that collect inputs and out.
- The water ways form a natural boundary barrier between U.S.A. and Canada thereby limiting the costs of maintaining the boarder boundary and controlling territorial conflicts between the two countries.
- The water ways especially the sea way has solved flooding particularly in shallow sections from Kingston to Montreal thus controlling destruction of crops, settlement and disease outbreak.
- The water ways provide water for domestic and industrial use particularly for the textile, timber and pulp paper industries at Ottawa, Kingston and Quebec.

Negative contributions

- Congestion along the St Lawrence leads to delays affecting business enterprises because a lot of time is taken for goods to pass through the seaway and getting cleared.
- Pollution from oil spills, gaseous emissions in urban centres like Detroit, Montreal, Pittsburg affecting both aquatic life and man.
- Has led to growth of towns like Chicago, Detroit and their associated problems like gambling, prostitution, crime proliferation, and congestion which compromise the people's standard of living.
- Involves high costs of water treatment and maintenance costs like dredging, removal of ice during winter thus leading to increased government expenditure.
- So many locks used to control the level of water to enable use by big ships along the Sea way lead to delays and disruption of business.
- Construction of canals, dams e.g. Barnhart dam, movement of ships affects aquatic life like salmon fish along the water ways have affected the fishing industry.
- Limited visibility in spring causes accidents which claim people's lives and loss of property.
- Leads to over exploitation of natural resources thus threatening the future sustainability of industries.
- The St Lawrence Sea way allows ships to sail far in the interior up to Chicago, Duluth hence reducing the importance of New York port and reduction of revenue used to develop New York.
- Its construction involved displacement of people from their land.

Importance of Inland Water transport in Western Europe

Positive contribution

- The inland water waterways opened up remote areas in Germany, France, and Netherlands for international trade which is a source of revenue and income to the people.
- Led to development of towns such as Rotterdam in Netherlands with improved social services.

- Led to agricultural development through facilitation of transport of inputs to the farms and outputs to market.
- Stimulated industrial growth such as iron and steel, chemicals, electronic and engineering industries in Germany through facilitation of both raw material importation and exportation of manufactured goods.
- Rhine waterway stimulated International trade by handling exports and imports from Germany; France, Switzerland and Netherlands.
- Encourage settlement along the waterways for example at Basel, in Switzerland, Rotterdam in Netherlands and Mainz in Germany leading to development through stimulation of trade and provision of services like health care, education etc.
- Have promoted tourism by facilitation of river cruises and the spectacular drainage features along e.g. locks and canals e.g. Rhone, Rhine canal.
- Have led to acquisition of foreign exchange from duties on exports and imports in the respective countries.
- Have led to acquisition of local revenue through taxation of ships and boats that use the waterway and this is used for development
- Have led to technological development such as marine technology and construction of various locks, canals and various ports such as Euro port, Rotterdam necessary for development
- Led to generation of HEP for domestic and industrial use.
- The Rhine waterway has strengthened cooperation between France, Germany, Netherlands and Switzerland etc.
- Provides employment opportunities to different categories of people such as Traffic wardens, marine engineers etc.
- Has stimulated the exploitation of natural resources such as coal and iron ore from the Ruhr coal fields of Germany, timber resources from the Rhone Alps of France etc.
- Has facilitated development of other forms of transport that link to the rivers/canals
- Provides water for domestic and industrial use.
- Has solved the problem of flooding along its lower section in Netherlands around Rotterdam thus encouraging settlement and farming.

Negative contributions

- Have led to over exploitation of resource e.g. coal from the exposed Ruhr coal field, increased deforestation in the Rhone Alps which threatens the future existence of the related industries.
- Leads to pollution of the River Rhine due to oil spillage boats and ships and industrial effluents.
- Traffic congestion leads to delay of business.
- The waterways allow ships to sail far deep inland thus reducing the revenue collected by Rotterdam as a port.

- Led to growth of towns and their associated evils such as slum development, prostitution, poor hygiene.
- There are high costs of water treatment due to pollution.
- Limited labour on farms due to rural-urban migration.
- There is unemployment due to mechanization of handling activities.
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Thank you

Dr. Bbosa Science