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## GUESS PAPER SERIES

**SESSION -2**

**DATE- 26 July 2019**

**Topics Covered – a) Ocean Currents**

**b) Motor Vehicle Act**

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**Q1) Discuss the formation of Oceanic Currents? What are the significance and impact of these currents over local climate?**

## **Ocean Currents - Factors and Impact on Climate**

The movements of water in oceans can be categorized into currents, waves, and tides. Among these, ocean currents are the large masses of surface water that circulate in regular patterns around the oceans.

### **Ocean Current**

Depending upon their temperature, ocean currents can be classified into warm currents and cold currents.

Warm currents flow from equatorial regions towards the polar regions and hence have a higher surface temperature. [from lower latitudes to higher latitudes].

These currents flow in the clockwise direction in the northern hemisphere and in the anti-clockwise direction in the southern hemisphere.

Cold currents flow from polar regions towards the equator and have a lower surface temperature [ from higher latitudes to lower latitudes]. They flow in the anti-clockwise direction in the northern hemisphere and in the clockwise direction in the southern hemisphere.

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## Factors responsible for Ocean Currents

The following are the factors responsible for ocean currents:

- The Planetary winds,
- Temperatures,
- Salinity,
- The earth's rotation,
- Obstruction from land

### The Planetary winds

The general distribution of winds in the lower atmosphere is called as Planetary winds. The Earth's atmosphere is divided into permanent pressure belts - The Equatorial low-pressure belt, The Sub-tropical high-pressure belt, Sub-polar low-pressure belt and Polar high-pressure belts. The planetary winds are permanent winds that blow from one pressure belt to the other. Accordingly, they have been divided into - Tradewinds, Westerlies and Polar Easterlies.

The Planetary winds are probably the dominant influence on the flow of ocean currents. The strongest evidence of prevailing winds on the flow of ocean currents can be witnessed in the North Indian Ocean where there is a change in the direction of ocean currents with a change in direction of the monsoon winds. The oceanic circulation pattern roughly corresponds to the earth's atmospheric circulation pattern.

### Temperature



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The differential heating of the Sun at the equator and the poles causes a difference in the temperature of ocean water. At the equator, since the temperature is higher the ocean water gets heated up and expands. This makes the warm water lighter and hence rises while at the poles, cold water is denser and sinks. Warm water from the equator slowly moves along the surface towards the poles, while the cold water from the poles slowly creeps along the bottom of the sea towards the equator.

Hence, the difference in heating and surface temperatures play a key role in movements of ocean water.

## **Salinity**

The density of water also depends on its salinity and the salinity of water varies from place to place. Waters of low salinity flow on the surface of waters of high salinity while waters of high salinity flow at the bottom.

## **The earth's rotation and Coriolis force**

The earth's rotation deflects moving objects to the right and ocean currents are no exception. Under the action of Coriolis force, the movement of ocean currents in the northern hemisphere is in the clockwise and in the southern hemisphere it is in the anti-clockwise direction. Hence it can be said that ocean currents obey Ferrel's law.

## **Obstruction due to land**

A land mass obstructs the direction of flow of ocean current and divides the ocean current which in turns flow in a different direction. Example: The south equatorial current in the Atlantic Ocean is obstructed by South American

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continent and the South equatorial current divides to create the Brazilian current which flows in the south Atlantic Ocean.

## Currents in the Pacific Ocean

- North Equatorial Current (Warm)
- South Equatorial Current (Warm)
- Counter Equatorial Current (Warm)
- Kuroshio System (Warm)
- Oyashio Current (Cold)
- California Current (Cold)
- Peruvian or Humboldt Current (Cold)
- East Australia Current (Warm)
- North Pacific Drift (Warm)

## Currents in the Atlantic Ocean

- North Equatorial Current (warm)
- South Equatorial Current (warm)
- Equatorial Counter Current
- Gulf Stream (warm)
- Florida Current (Warm)

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- Canaries Current (Cold)
- Labrador Current (Cold)
- Brazilian Current (Warm)
- Falkland Current (Cold)
- South Atlantic Drift (Cold)
- Benguela Current (Cold)

## Currents in the Indian Ocean

- The North East Monsoon Drift
- The South West Monsoon Drift
- North Equatorial Current (Warm)
- South Equatorial Current (Warm)
- Somali Current (Cold)
- Mozambique Current (Warm)
- Madagascar Current (Warm)
- Agulhas Current (Warm)
- West Australian Current (Cold)

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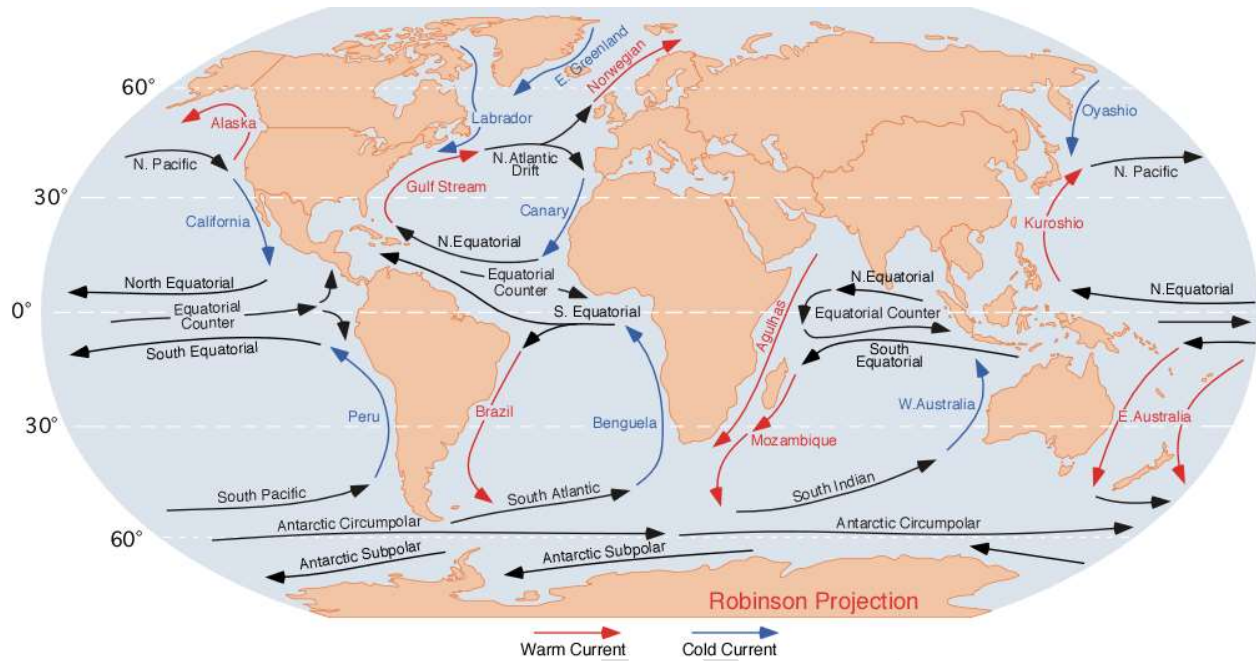
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Apart from these, the Antarctic Circumpolar Current circles the Earth across the Pacific, the Atlantic and the Indian Oceans almost without any interruption.

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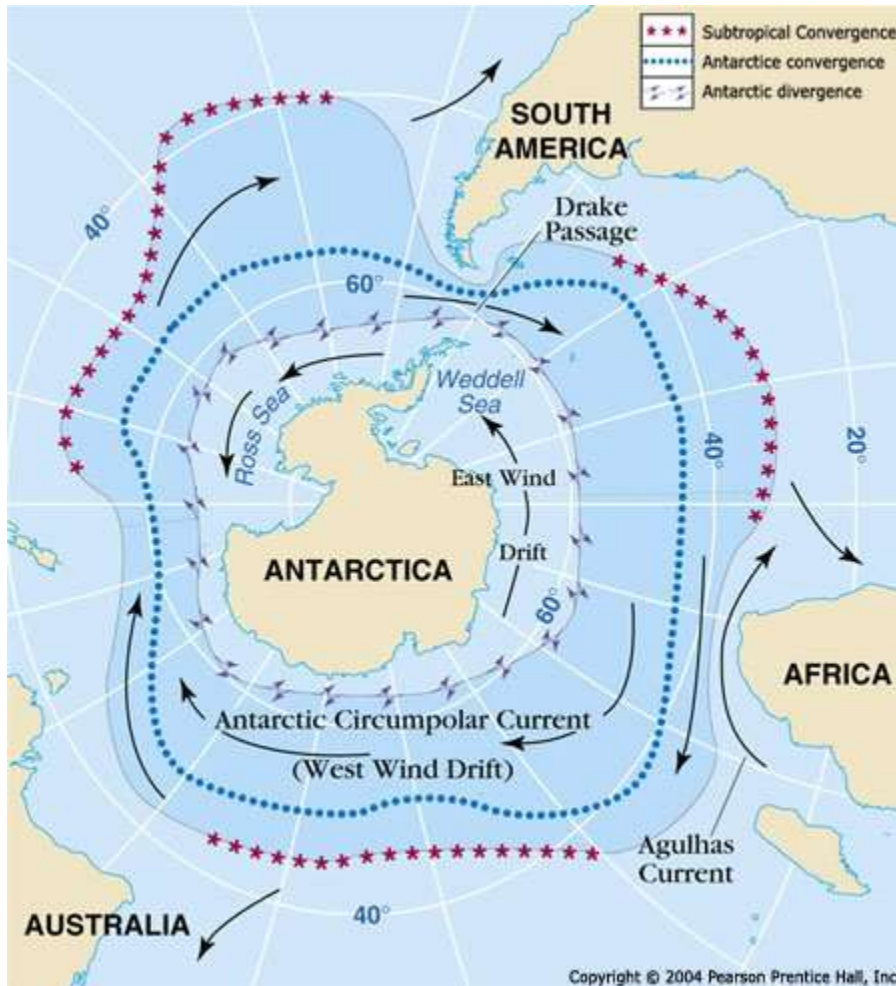
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## Impact of Ocean Currents

### Local Climate

- Warm and Cold currents affect the local climate of a region.
- For example, the Gulf Stream which is driven to the western coast of Europe as the North Atlantic Drift keeps the coasts of North Sea warm which is unusual for such high latitudes.

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- Similarly, the warm waters of the Kuroshio current in the North Pacific ocean are carried as the North Pacific Drift keeping the ports of the Alaskan coast ice-free in winter.

## **Rains and Desert Formation**

- Warm ocean currents bring rains to the coastal regions and also the interiors while cold currents do not.
- Warm currents flow along the east coast of continents in tropical and sub-tropical latitudes resulting in warm and rainy climates while cold currents flow along the west coast of continents.
- Cold currents are one of the reasons why deserts are located the western margins of continents in the sub-tropical belts.
- For example, Californian current which is a cold current brings a dry and desert type of climate to the region.

## **Fishing grounds**

- The mixing of warm and cold currents help to replenish the oxygen and favour the growth of planktons which is the regions are rich in microscopic marine plants and animals.
- These are crucial for the survival of marine ecosystems.
- Hence these regions form excellent fishing grounds as phytoplankton is the primary source of food for the fish.
- For example, the Great Banks near Newfoundland is formed by the mixing of cold Labrador current with the warm Gulf Stream.

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## Navigation

- The atmospheric circulation of the winds and the oceanic circulation of the currents are almost coincidental and together they aid in the navigation of the ships.
- Ocean currents flow for great distances and together with the winds create a conveyor belt kind of system for navigation of the ships.

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**Q2) In the recent times the road accidents are increasing in our country. Discuss the significance of Motor Vehicle Act in this regard?**

### **Here's how Motor Vehicles Act will affect you**

Those who do not give way to an ambulance or fire brigade may soon have to face a hefty fine of as much as ₹10,000 or/and imprisonment up to six months.

Their driving licence could be suspended in case they are caught speeding, racing, or driving under the influence of alcohol, among others. Road safety and reducing the number of accidents are key priorities of the government and imposing stiffer penalties can bring more discipline and force people to adhere to the traffic rules.

Cleared by the Lok Sabha on Tuesday, the [Motor Vehicles Amendment Bill, 2019](#) will be introduced in the Rajya Sabha soon for its approval. Thereafter, the proposed amendments will become a law after the President's consent.

The bill, which will replace the 30-year old law, aims to overhaul the country's transportation laws by addressing crucial issues such as road safety, reducing deaths due to road accidents, imposing stiffer penalties on violation of rules, and weeding out corruption, thereby transforming India's road transport system.

"This Bill is an important first step to improve road safety in India. The law will help us meet our international commitments under the Brasilia Declaration of 2015 and the UN Sustainable Development Goals. The next important step is speedy passage in Rajya Sabha to ensure full implementation of the legislation,"



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said Piyush Tewari, founder of SaveLIFE Foundation, a policy advocacy organisation that works on road safety and emergency care.

In a first, the Centre will develop a system for cashless treatment of road accident victims during the golden hour -- time period lasting one hour after a traumatic injury during which there is the highest likelihood of preventing death by providing medical care. Besides, citizens who come forward and rescue accident victims will not be harassed.

Obtaining a [driving licence](#) (DL) will get tougher if you don't have adequate skills as driving test will become technology driven, reducing human interface to curb corruption. Currently, licence testing is manual and untrained people also get licence. The proposed changes in the Act gives power to the Centre to make rules for the authority that issues licences. A national register of driving licence will be created that will comprise licence data from throughout the country to make transfer of vehicles across states easier and weed out fake DLs.

A Delhi-based professional, requesting anonymity, told Mint that imposing heavy penalties comes across as a good initiative and it will definitely change driving habits of people.

"The question still remains how it can be implemented effectively by state authorities. At times more fine may not necessarily end corruption and bribery," she said. "Hopefully, the provision of protecting good Samaritans will encourage more people to come forward and help out accident victims in need."

The government will also have the power to regulate taxi aggregators such as Ola and Uber. Till now, the law did not recognise cab aggregators. Adding the word

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'aggregators' in the Act will give power to the Centre to frame guidelines for these companies and make them more compliant.

An automobile manufacturer will have to recall motor vehicles in case of a defect that causes damage to the environment. Road contractors may need to be careful as they can be penalized for faulty road designs. Currently, there is no such provision under the law.

The Motor Vehicles (Amendment) Bill, 2019 seeks to **amend the Motor Vehicles Act, 1988** to provide for road safety.

### **Key highlights:**

1. **Compensation for road accident victims:** The **central government will develop a scheme for cashless treatment** of road accident victims during golden hour. The central government may also make a scheme for providing **interim relief** to claimants seeking compensation under third party insurance.
2. **Compulsory insurance:** The Bill requires the central government to constitute **a Motor Vehicle Accident Fund**, to provide compulsory insurance cover to all road users in India.
3. **The fund will be utilised for:** (i) treatment of persons injured in road accidents as per the golden hour scheme, (ii) compensation to representatives of a person who died in a hit and run accident, (iii) compensation to a person grievously hurt in a hit and run accident, and (iv) compensation to any other persons as prescribed by the central government.
4. **This Fund will be credited through:** (i) payment of a nature notified by the central government, (ii) a grant or loan made by the central government, (iii)



balance of the Solatium Fund (existing fund under the Act to provide compensation for hit and run accidents), or (iv) any other source as prescribed the central government.

5. **Good Samaritans:** The Bill defines a good Samaritan as a person who renders emergency medical or non-medical assistance to a victim at the scene of an accident. The assistance must have been (i) in good faith, (ii) voluntary, and (iii) without the expectation of any reward. **Such a person will not be liable for any civil or criminal action for any injury to or death of an accident victim, caused due to their negligence in providing assistance to the victim.**

6. **Recall of vehicles:** The Bill allows the central government to order for recall of motor vehicles if a defect in the vehicle may cause damage to the environment, or the driver, or other road users.

7. **The manufacturer of the recalled vehicle will be required to:** (i) reimburse the buyers for the full cost of the vehicle, or (ii) replace the defective vehicle with another vehicle with similar or better specifications.

8. **National Transportation Policy:** The central government may develop a National Transportation Policy, in consultation with state governments. The Policy will: (i) establish a planning framework for road transport, (ii) develop a framework for grant of permits, and (iii) specify priorities for the transport system, among other things.

9. **Road Safety Board:** The Bill provides for a National Road Safety Board, to be created by the central government through a notification. The Board will advise the central and state governments on all aspects of road safety and traffic management including.



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10. **Offences and penalties:** The Bill increases penalties for several offences under the Act.

11. **Taxi aggregators:** The Bill defines aggregators as digital intermediaries or market places which can be used by passengers to connect with a driver for transportation purposes (taxi services). These aggregators will be issued licenses by state. Further, they must comply with the Information Technology Act, 2000.

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