

CURRENT AFFAIRS

WEEKLY

WEEK - 4
DECEMBER, 2019

PRELIMS

ECONOMY

- Operation Twist
- Tripura gets its first SEZ
- H1-B visas

ENVIRONMENT & ECOLOGY

- Rhinos to be re-introduced in Uttarakhand
- Why India needs a Project Dolphin

POLITY & GOVERNANCE

- Accessible India Campaign (Sugamya Bharat Abhiyan)
- NITI Aayog to draft roadmap for achieving population stabilisation
- Pradhan Mantri Matru Vandana Yojana
- The Draft National Statistical Commission Bill

SCIENCE & TECHNOLOGY

- Hydrogen-Based Cars
- Indian Pharmacopoeia

SOCIAL ISSUES

- Breast Milk Banks

SOCIETY

- JAGA Mission
- Koraga Community
- 3-D Bio-printing

MAINS

ECONOMY

- Pharmaceutical Sector – Growth, Problems, Challenges & Solutions

INTERNATIONAL RELATIONS

- In numbers and dimensions, the global refugee crisis and India's refugee saga, from 1947 to 2017
- West Asia Politics and Conflicts

POLITY & GOVERNANCE

- Criminal Justice System – Problems and Solutions

SCIENCE & TECHNOLOGY

- The link between food, nutrition, diet and non-communicable diseases

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The current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

CURRENT AFFAIRS ANALYST

WEEK-4 (DECEMBER, 2019)

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SECTION: A
(MAINS)

CURRENT AFFAIRS

PHARMACEUTICAL SECTOR – GROWTH, PROBLEMS, CHALLENGES & SOLUTIONS

CONTEXT

- Recently, National Pharmaceutical Pricing Authority (NPPA) has raised the ceiling prices of 21 essential medicines by 50%. In this context, we are bringing out an analysis of pharma sector in India.

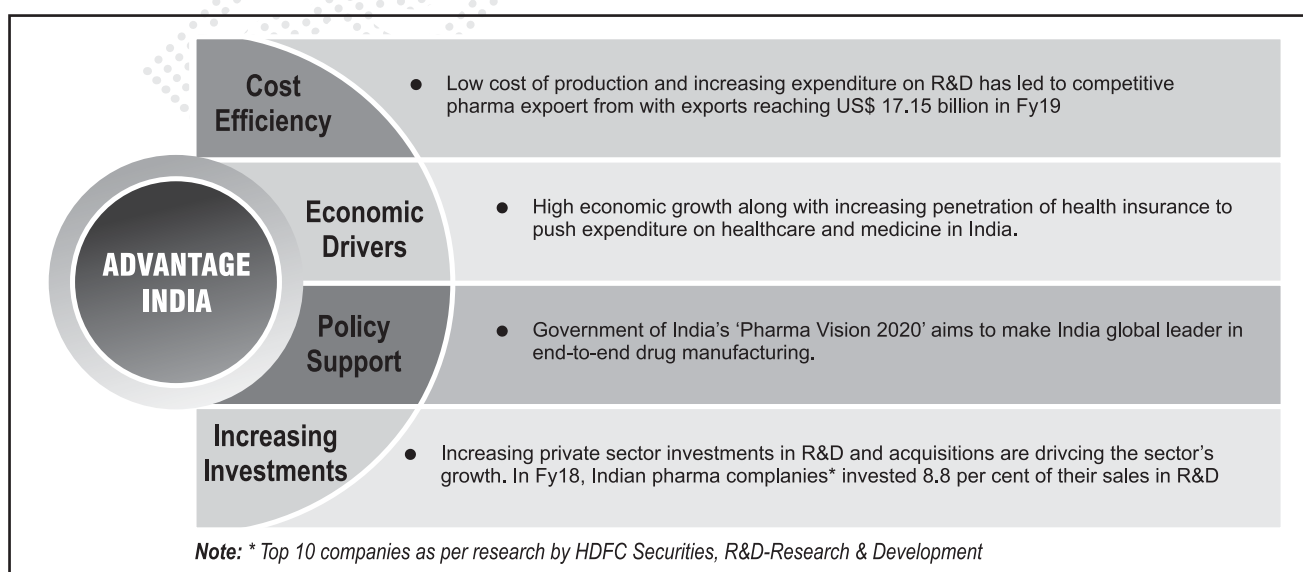
◎ BACKGROUND

- India is the largest provider of generic drugs globally. Indian pharmaceutical sector industry supplies over 50 per cent of global demand for various vaccines.
- The pharmaceutical sector was valued at US\$ 33 billion in 2017.
- As per Economic Survey 2018-19 the country's pharmaceutical industry is expected to expand at a CAGR of 22.4 per cent over 2015–20 to reach US\$ 55 billion. India's pharmaceutical exports stood at US\$ 17.27 billion in FY18 and have reached US\$ 19.14 billion in FY19.
- Indian companies received 304 Abbreviated New Drug Application (ANDA) approvals from the US Food and Drug Administration (USFDA) in 2017.
- Pharmaceutical exports include bulk drugs, intermediates, drug formulations, biologicals, Ayush & herbal products and surgicals.
- India's biotechnology industry comprising bio-pharmaceuticals, bio-services, bio-agriculture, bio-industry and bioinformatics is expected to grow at an average growth rate of around 30 per cent a year and reach US\$ 100 billion by 2025.

◎ ANALYSIS

Problems & Challenges

- India is the third largest manufacturer of pharmaceutical products in terms of volume and it is growing steadily. The market has seen the entry of many foreign players as well as rise of many domestic manufacturers. However, the industry faces many speed breakers:
 - Lack of R&D:
 - The Indian pharma industry faces lack of research components and real time good manufacturing practices.
 - No doubt investment (as % of sales) in research & development by Indian pharma companies increased from 5.3 per cent in FY12 to 8.5 per cent in FY18 but it is still low as compared to US counterparts that invest in R & D 15–20% of their sales.
 - China is ascending at a great speed to a leading position worldwide in terms of Research and Development investment, scientific publications and patents. China is known for its mass-production of low-level generic drugs and as a 'world factory' of active pharmaceutical ingredients (APIs). India is importing APIs from china at large scale



- **Why?**
 - Simple enough answer, the lower the profits for the companies, the lower the investments. So the companies sight that due to the low income they are not able to develop products the way they want.
- ◉ **Compliance issues and good manufacturing practices:**
 - This has somehow always been a problem for the Indian companies. The ongoing rumor is that the United States Food and Drug Administration is trying to block the growth of the companies.
 - **Why is the approval of USFDA important?**
 - The approval of USFDA is important because the largest consumer of pharma products is the USA and India is a major exporter. The opinion of the USFDA is considered to be the standard in the sector as well.
 - The companies are trying to improve their standards and this issue can be solved by having officials who are more stringent and inspections on a regular basis can be done
- ◉ **Highly fragmented industry**
 - The Indian pharma industry is highly fragmented. The market is overloaded with generic manufacturers.
 - **Why is this a problem?**
 - This is a cause for concern because high fragmentation causes instability, volatility and uncertainty. This is certainly not a good omen for the pharma sector.
 - Pharmaceutical companies can review their strategies to survive in a volatile environment.
 - Some of the actions that can be taken by the companies are they can periodically review their product portfolio and build more customer centric products.
 - The companies need to build their organisation in such a way that will enable better operational ability and agility.
- ◉ **Low Margins of profits due to government pricing policies – Drug Price Control Order**
 - Indian pharma companies are not getting proper profits; their earnings are basically very low as compared to their counterparts in other countries such as the US.
 - Their income is not sufficient enough to invest money on research component.
 - The companies sight that the reforms of the Government for the essential medicines has caused them to lower the price of drugs. This has been done by the Government for the betterment of the public. So the Government has to think of a way to promote the pharma companies as well.
- Funding for the pharma companies might be a way to move forward.
- National Pharmaceutical Pricing Authority (NPPA) has recently raised the ceiling prices of 21 essential medicines by 50% as China has increased the prices of APIs.
- ◉ **Stronger IP regulations**
 - IP regulation has always been a thorn in the skin for the companies, especially the foreign companies. The companies strongly feel that the rules have to be amended and the so-called victim of the lax regulations have been the foreign entrants.
 - The solution to this answer might be provided by the IPR Think Tank formed by the Government to draft a stronger national IP policies.
 - The U.S. recognises and encourages secondary patents. India, however, does not. India's rejection of secondary patents has kept blockbuster medicines affordable for many.
- ◉ **Dependency on China**
 - The pharma industry is dependent on China for the supply of raw material for generic medicines production.
 - India's dependence on Chinese APIs imports makes the former vulnerable to the price mechanisms.
- ◉ **Lack of Policy Support**
 - India needs user friendly government policy for the common man to establish small scale, raw material manufacturing units/ incubators in all states of the country to improve availability of raw materials to manufacture generic drugs at affordable rates.
 - The government and industry should facilitate the pharmacist community to become entrepreneurs and promote incubators' establishment.
- ◉ **Lack of good quality of indigenously produced Raw Materials**
 - Raw material produced from small scale units should be properly validated in the testing laboratory of the state to ascertain their quality specifications.
 - There is a need for a functional testing laboratory in every state to fasten the work of specification of raw materials.
 - Small scale produces may be re-processed in another industry or via a chain of industry for quality products that can be used for parenteral/tailor-made formulations.

◦ Lack of Skilled Labour

- ▶ Skilled manpower from academic institutions can be achieved through continuing education programmes.

◦ Pharmaceutical Marketing Malpractices

- ▶ The pharmaceutical industry has been accused of adopting questionable practices in relation to the marketing of their products. The main focus of attention in this respect has been the suspect interactions between pharmaceutical companies and healthcare practitioners/providers (HCPs). The unethical marketing practices comprises of:

• Claims made during promotional activities that are:

- Misleading and give rise to unjustifiable drug use leading to risks.
- Not capable of substantiation.
- Not in good taste.
- Comparative with another drug, without any substantive basis for such comparison.
- Unqualified in the use of terms such as safe.
- An improper representation of the true nature of the drug.

• Interaction with HCPs comprises of following malpractices

- Free samples of drugs
- Offering of gifts or monetary benefits to HCPs or family members.
- Providing travel or lodging facilities to HCPs in relation to attending seminars, continuing medical education (CME) programmes.
- Extension of grants or funds for medical research or clinical trials.

Suggestions

◦ Research schemes

- ▶ Should be initiated by the industry via direct contact with identified researcher/faculty.
- ▶ Incentives should be paid to students contributing towards development of any research formula for the industry.

◦ Industry-Academia Tie-Up

- ▶ Industries should contact Indian academic institutions to get qualified students who have the knowledge and aptitude for research and development in pharma.
- ▶ Industry should explore the availability of qualified students beyond metro cities.

◦ International Collaborations

- ▶ The industry and the government must collaborate with the international research organisations for research and development to invent new formulas, drugs and treatments.

◦ Internal Industrial Trainings:

- ▶ Every industry has its own protocol to serve the society. Therefore, the pharma industry should train students as per their need. Only a few industries are thinking in this line.
- ▶ Adoption of user-friendly policies will help establish small scale industry and encourage students and middle class business owners with ambitions in this line. This will also help overcome the problem of unemployment for pharmacists and promote entrepreneurship in the nation.

◦ Setting Up Special Pharma Research Centers

- ▶ With changing times, students are getting exposure through internet about research/technology around them.
- ▶ Indian academic institutions are full of ideas born from the young, creative brains of students.
- ▶ Indian pharma industry can explore these ideas for future progress.
- ▶ There are ample opportunities for industries to represent their data via academic pharma institutions.
- ▶ Pharmacy students are highly qualified persons in handling of instruments with having good knowledge of data interpretation and data mining. The important part is that there is no significance of instrumental data without interpretation. Therefore, such knowledge of students can be explored by the industry at the cost of living wedges.

Steps by Government

◦ 100% FDI in Pharma Sector

- ▶ The Union Cabinet has given its nod for the amendment of the existing Foreign Direct Investment (FDI) policy in the pharmaceutical sector in order to allow FDI up to 100 per cent under the automatic route for manufacturing of medical devices subject to certain conditions.
- ▶ The drugs and pharmaceuticals sector attracted cumulative FDI inflows worth US\$ 15.98 billion between April 2000 and March 2019, according to data released by the Department of Industrial Policy and Promotion (DIPP).

- **Setting Pharma Parks**

- ▶ In October 2018, the Uttar Pradesh Government announced that it will set up six pharma parks in the state and has received investment commitments of more than Rs 5,000-6,000 crore (US\$ 712-855 million) for the same.

- **National Health Protection Scheme**

- ▶ The National Health Protection Scheme is largest government funded healthcare programme in the world, which is expected to benefit 100 million poor families in the country by providing a cover of up to Rs 5 lakh (US\$ 7,723.2) per family per year for secondary and tertiary care hospitalization. The programme was announced in Union Budget 2018-19.
- ▶ It has the potential to turn India into the largest pharma manufacturer of the world in about three years.

- **Ease of Doing Business**

- ▶ In March 2018, the Drug Controller General of India (DCGI) announced its plans to start a single-window facility to provide consents, approvals and other information. The move is aimed at giving a push to the Make in India initiative.

- **E-Pharmacies**

- ▶ The Government of India is planning to set up an electronic platform to regulate online pharmacies under a new policy, in order to stop any misuse due to easy availability.

- **Pharma Vision 2020**

- ▶ The Government of India unveiled 'Pharma Vision 2020' aimed at making India a global

leader in end-to-end drug manufacture. Approval time for new facilities has been reduced to boost investments.

- **Affordability and Availability of medicines Mechanism**

- ▶ The government introduced mechanisms such as the Drug Price Control Order and the National Pharmaceutical Pricing Authority to deal with the issue of affordability and availability of medicines.

◎ CONCLUSION

- Medicine spending in India is projected to grow 9-12 per cent over the next five years, leading India to become one of the top 10 countries in terms of medicine spending.
- Going forward, better growth in domestic sales would also depend on the ability of companies to align their product portfolio towards chronic therapies for diseases such as cardiovascular, anti-diabetes, anti-depressants and anti-cancers that are on the rise.
- The Indian government has taken many steps to reduce costs and bring down healthcare expenses. Speedy introduction of generic drugs into the market has remained in focus and is expected to benefit the Indian pharmaceutical companies. In addition, the thrust on rural health programmes, lifesaving drugs and preventive vaccines also augurs well for the pharmaceutical companies.

IN NUMBERS AND DIMENSIONS, THE GLOBAL REFUGEE CRISIS AND INDIA'S REFUGEE SAGA, FROM 1947 TO 2017

CONTEXT

- The first Global Refugee Forum (GRF) was held in Geneva, Switzerland, jointly hosted by the United Nations High Commissioner for Refugees (UNHCR), the United Nations Refugee Agency, and the Government of Switzerland.

◎ BACKGROUND/OUTCOMES OF THE REPORT

- Globally, more than two-thirds of all refugees come from five countries: Syria (6.7 million), Afghanistan (2.7 million), South Sudan (2.3 million), Myanmar (1.1 million), and Somalia (0.9 million).
- According to the UN, by the end of 2018, there were around 70.8 million people around the world who had left their home countries because of conflict and persecution. Of these 70.8 million, roughly 30 million are refugees.
- Countries in the developed regions host 16 per cent of refugees; one-third of the refugee population (6.7 million people) are in the Least Developed Countries.
- The largest host countries are Turkey (3.7 million), Pakistan (1.4 million), Uganda (1.2 million), Sudan (1.1 million), and Germany (1.1 million).
- According to the UN's Global Trends report, there are 37,000 new displacements every day.
- In 2018, 13.6 million people were newly displaced due to conflict and or persecution.

Who is a refugee?

- The UN defines refugees as those individuals that have fled their own countries because of persecution, war or violence.
- "A refugee has a well-founded fear of persecution for reasons of race, religion, nationality, political opinion or membership in a particular social group. Most likely, they cannot return home or are afraid to do so. War and ethnic, tribal and religious violence are leading causes of refugees fleeing their countries".
- Refugees are defined and protected in international law. The 1951 Refugee Convention is a key legal document and defines a refugee as: "someone who is unable or unwilling to return to their country of origin owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion."

THE 1951 REFUGEE CONVENTION

- In 1951, the **Refugee Convention** was adopted by the United Nations.
- Denmark was the first country to ratify the Convention in 1952. Since then a total of 145 countries, including the UK, have made a **legal promise** to protect refugees.



Who is an internally displaced person?

- An internally displaced person (IDP) is a person who has been forced to flee his or her home for the same reason as a refugee, but remains in his or her own country and has not crossed an international border. Unlike refugees, IDPs are not protected by international law or eligible to receive many types of aid.

Current refugee crises across the globe

- In Burundi in East Africa, a humanitarian crisis is unfolding. Economic decline, outbreak of disease, and food insecurity have led to displacements within and outside the country to neighbouring countries including Rwanda, Uganda, the Democratic Republic of Congo and Tanzania.
- An estimated 5.6 million people from Syria have left the country since 2011, seeking refuge in neighbouring Lebanon, Turkey, and Jordan among other countries.
- Turkey hosts the largest number of Syrian refugees at roughly 3.3 million. According to UNHCR, the majority of the Syrians in neighbouring countries live in the urban areas, while roughly 8 per cent live in refugee camps.
- Rohingya Muslims of Myanmar fled the country after violence broke out in the country's Rakhine state. An estimated 6.7 lakh crossed over to neighbouring Bangladesh.

- Other countries and regions facing a refugee situation include Europe, Yemen, Central America, Africa, South Sudan, Venezuela, DR Congo, and Nigeria.

Current Refugee situation in India

- India does not have a separate statute for refugees, and until now has been dealing with refugees on a case-by-case basis.
- India is not a signatory to the 1951 Convention on Refugees or the 1967 Protocol Relating to the Status of Refugees.
- Union government circulated to all states and Union Territories a Standard Operating Procedure to deal with foreign nationals who claimed to be refugees.
- Rohingya started to arrive in India's northeast following stepped-up persecution by the Myanmar armed forces.
- Rohingya presence in the country has serious national security ramifications and it poses national security threats.
- There is a serious possibility of eruption of violence against Buddhists who are Indian citizens and who stay on Indian soil by radicalised Rohingyas.

India's refugee saga, from 1947 to 2017

- In the seven decades since it became an independent country, India has seen and largely welcomed waves of migrants fleeing conflict in neighbouring nations.
- Indo-Pakistan partition period:** It started with Partition itself, though people who crossed over the newly formed boundaries between India and Pakistan—by choice or forcibly—didn't lose their nationalities; they were still forced to live the lives of a refugee. Refugee camps across north India served as homes for those who had borne the brunt of Partition.
- Tibetan refugee:** The next major movement of refugees towards India happened almost a decade after Partition, in 1959, when the Dalai Lama, along with more than 100,000 followers, fled Tibet and came to India seeking political asylum. Granting asylum to them on humanitarian grounds proved costly to India. As a result, Sino-Indian relations took a major hit. Border issues between the two countries, and Chinese encroachment on Indian Territory, began to crop up with greater frequency.
- The Bangladeshi refugee:** The next major refugee crisis happened during Bangladesh's war of independence in 1971, when millions of refugees migrated from the country to India, fleeing the conflict between the Pakistani army and Bangladeshi forces. This led to a sudden spike

in population in states bordering Bangladesh. According to some estimates, more than 10 million Bangladeshi refugees escaped in 1971 and took shelter in India.

- The Sri Lankan Tamil refugees:** Another sizeable group of refugees in India comprises Sri Lankan Tamils who abandoned the island nation in the wake of active discriminatory policies by successive Sri Lankan governments, events like the Black July Riots of 1983, and the bloody Sri Lankan civil war. Mostly these refugees, who number over a million, settled in the state of Tamil Nadu.
- The Afghan refugees:** While not one of the larger refugee groups in the country, a number of Afghans also took shelter in India after the Soviet invasion of Afghanistan in 1979. Small groups of Afghan refugees kept coming to India in subsequent years. These refugees are mostly concentrated in and around Delhi, and have largely established spaces for themselves.
- The Rohingya refugees:** 40,000 Rohingya Muslims escaped Myanmar to take shelter in India. However, India has categorized the Rohingya as illegal immigrants and a security threat, siding with the Burmese government. The Indian government has stated that the principle of non-refoulement, or of not forcing refugees to return to their country of origin, does not apply to India principally as it is not a signatory to the 1951 refugees convention.
- The Chakma and Hejong refugees:** Many from the Chakma and Hajong communities—who once lived in the Chittagong hill tracts, most of which are located in Bangladesh—have been living as refugees in India for more than five decades, mostly in the North-East and West Bengal. According to the 2011 census, 47,471 Chakmas live in Arunachal Pradesh alone.

New York Declaration for Refugees and Migrants

- Adopted at UNGA
- The declaration expresses the political will of world leaders to protect the rights of refugees and migrants to save lives and share responsibility for large movements on a global scale.

Some Consequences

- The refugees also have an impact on the economy and society of their host nations.
- Large number of refugees can have a devastation impact on the host nation.
- Large number of refugees actually loses their lives while trying to reach different countries which might take them.

- They could be used by terrorist organisations, sex or slave trade etc., thus denial of basic human rights, disruption of global peace.
- It is often seen that immigrants are exploited for their cheap labour.
- Immigration sometimes also becomes social or political issue; racism is used to exploit feelings or as an excuse for current woes of the local population.



WEST ASIA POLITICS AND CONFLICTS

CONTEXT

- The regional dynamics of West Asia is rapidly changing. Saudi Arabia, Iran, and Turkey are contending each other's views and are divided on the basis of their deep vested interests. Recently, United States announced its pull-out from Syria. The complicated and multifaceted nature of West Asia politics and conflict has roots in the region's history, which warrants an in-depth assessment.

◎ BACKGROUND:

- **Strategic location:** Geopolitically, West Asia occupies an important position in international relations due to its geographical location and proximity to continents and countries –
 - ▶ South Asia, China, Central Asia, Europe, and Africa.
- **Trade routes and birthplace of Abrahamic religions:** The region is strategically significant due to its enormous energy resources, trade route links to different parts of the world and for fact that it is the place of origin for the Abrahamic religions.
- **Energy resources:** It is the world largest oil-producing region accounting for 34% of world production, 45% of crude oil exports and 48% of oil proven reserves.
 - ▶ All powers seek a stake in the affairs of the region due to the abundance of natural resources.
- **Instability and conflicts:** It is also a region plagued with instability largely due to the involvement of external forces, and sometimes due to internal conflicts.
- **Geography:** West Asia is the westernmost sub region of Asia. It includes Anatolia, the Arabian Peninsula, Iran, the Levant, Mesopotamia, the Sinai Peninsula, and Transcaucasia.
 - ▶ The region is considered to be separated from Africa by the Isthmus of Suez, and separated from Europe by the waterways of Turkish Straits and the drainage divide of the Caucasus Mountains.
- **Population:** 20 countries are located fully or partly in Western Asia, out of which 13 are part of the Arab world.
 - ▶ The most populous countries in Western Asia are Turkey (partly in Southeast Europe), Iran, Iraq, Saudi Arabia, and Yemen.
 - ▶ The total population of Western Asia is estimated to be 300 million (as of 2015).

◎ ANALYSIS

Political history of the region – A time line

- **McMahon–Hussein Correspondence 1915 –16:** Under this correspondence the Britain offered Arabs across the Middle East self-rule in exchange for their aid in defeating the **Ottoman Empire** during the First World War.
- **Sykes-Picot Agreement 1916:** Britain and France sign a secret pact outlining their spheres of control in Middle East after the First World War. Palestine is designated for international administration pending consultations with Russia and other powers. The agreement is **seen by Arabs as a betrayal** of the Hussein-McMahon correspondence.
- **Balfour Declaration 1917:** It was a public statement issued by the British government during the First World War announcing support for the establishment of a **"national home for the Jewish people"** in Palestine, then an Ottoman region with a small minority Jewish population.
 - ▶ Later in the period, many Jews arrived in Palestine.
- **Arab-Israeli wars:** After the arrival of Jews, many wars took place between the Arab and Israeli coalitions, in which sides were often changed depending on changing scenarios.
 - ▶ **The Palestine Liberation Organisation (PLO)**, which would later play a significant role in Arab politics, was founded in Cairo by the **Arab League** in 1964.
 - ▶ In 1967 Israeli strikes against Egypt and Syria launched the **Six Day War**. Israel has occupied the West Bank, Arab East Jerusalem, and Syria's Golan Heights ever since.
 - ▶ The **Yom Kippur War of 1973** was also one of the Arab-Israeli wars.
- **Camp David Accord 1979:** In 1956, **Egypt nationalised the Suez Canal** and took control over the Sinai Peninsula. This led to further confrontation between Egypt and Israel.
 - ▶ Finally, in 1979, a peace deal was reached between Egypt and Israel through the Camp David Accord. **Egypt became the first Arab country to recognise Israel.**

- Following Egypt's peace agreement with Israel, Arab League suspended Egypt's membership to the league.
- ◉ **Iranian Revolution 1979:** The Iranian Revolution was a series of events that involved overthrow of the last monarch of Iran, and replacement of his government with an Islamic republic under **Ayatollah Rohullah Khomeini**, a leader of one of the factions in the revolt.
 - This movement against the **United States-backed monarchy in Iran** was supported by various leftist and Islamist organizations and student movements.
 - Since the establishment of Iran as an Islamic Republic, governments of United States and Iran have been at odds.
 - Iran is also the **largest Shia majority** country in the Arab region, which often brings it at **odds with Saudi Arabia** and other Sunni states in the region.
- ◉ **First Intifada 1987:** The First Intifada (uprising) was a **Palestinian uprising** against the Israeli occupation of West Bank and Gaza. The uprising lasted from December 1987 until the **Madrid Conference in 1991**, though some date its conclusion to 1993, with the signing of the **Oslo Accords**.
 - It is during this time that **Hamas was created** from the Gaza wing of Muslim Brotherhood.
 - **Muslim Brotherhood** was a Sunni Islamist religious, political, and social movement founded in Egypt in 1928.
- ◉ **Iraq-Iran war, 1980 – 88:** Iraq invaded Iran in 1980 because it was worried that the 1979 Iranian Revolution would cause Iraq's Shi'ite majority to **rebel against its Ba'athist Sunni government, led by Saddam Hussein**. Roots of the war also lay in a number of **territorial and political disputes** between Iraq and Iran.
 - Iraq wanted to seize control of the oil-rich **Iranian border region of Khūzestān**.
 - Iraq also wanted to assert its sovereignty over **both banks of Shaṭṭ al-'Arab** (Arvand Rud), which formed a historical border between the two countries.
 - Iraq's war effort were openly **financed by Saudi Arabia, Kuwait**, and other neighbouring Arab states and was **tacitly supported by US and Soviet Union**, while **Iran's only major allies were Syria and Libya**.
 - Iraq was said to have used Chemical weapons in the war, while **Iran counter** attacked using **revolutionary militia (Revolutionary Guards)**.
- Iraq made many attempts to sue for peace, but it was finally in **1988** when Iran accepted the **UN-brokered ceasefire**.
- ◉ **Iraq invades Kuwait 1990:** Kuwait became an independent **nation in 1961**, a move that the Iraqi government did not support. **Iraq claimed** that Kuwait was created by British imperialism and it was actually an **extension of Iraq**.
 - **Kuwait financed Iraq's war on Iran:** Fearing Iranian Revolution would move within its borders, Kuwait provided financial support to Iraq during the Iran-Iraq War. Later Iraq was unable to repay Kuwait and asked for loan forgiveness which the country denied.
 - **Kuwait did not reduce oil production:** Iraq-Kuwait relations were also strained because Kuwait did not comply with Iraq's suggestion of reducing its oil production in order to increase prices. Furthermore, Iraq accused Kuwait of slant-drilling in the Rumaila field in Iraq.
 - This finally culminated into Iraq's attack on Kuwait in 1990.
 - **Operation Desert Storm**, an international coalition, led primarily by US forces, launched air strikes and ground invasion into Iraq. The Iraqi military was unable to defend itself. US established an air base within the country.
 - Conflict ended through a **formal resolution passed by the UNSC** in 1991. Since then US has maintained a military presence in Kuwait.
- ◉ **Middle East peace conference and Oslo Declaration:** In 1991, Israeli, Syrian, Lebanese, Jordanian and Palestinian delegations attend the Middle East peace conference, which opens dialogues on Arab-Israeli and Israeli-Palestinian relations.
 - In the Oslo declaration of principles 1993, **PLO and Israel agree to recognise each other**.
 - In 1995, an Interim agreement on the future of Israeli-occupied Gaza and West Bank was signed by Israel and PLO. This agreement recognised the formation of a Palestinian Interim Self-Government Authority - an elected council.
- ◉ **Second Intifada 2000:** Over a period of time, many instances happened that **stalled reaching of a "final status" agreement** between Israel and Palestine **at the 2000 Camp David Summit** of which US was also a part.
 - **Ariel Sharon's visit:** Finally, Second Intifada began in 2000 when Palestinians rioted after Ariel Sharon, of the Likud party in Israel, visited the contended site of Temple Mount (Noble Sanctuary) in Jerusalem.
 - In 2005, leaders from Israel, Palestinian Authority (PA), Jordan and Egypt met in Sharm

el-Sheikh to discuss ways towards **ending the four year intifada**.

- ▶ **Fatah and Hamas conflict:** 2006 was witness to an inside conflict between the two main Palestinian political parties, Fatah and Hamas, resulting in split of PA in 2007. The reconciliation process and unification of Hamas and Fatah administrations remains un-finalized even today.
- **Lebanon war 2006:** In 2006, Hezbollah conducted a cross-border raid on Israeli border towns. This led to conflicts between the two nations, with unprecedented **Iranian military support to Hezbollah**. Later in the year, a UN-brokered ceasefire was reached.

Hezbollah

- Hezbollah is a Shia Islamist political party and militant group based in Lebanon. It was founded in the early 1980s as part of an Iranian effort to aggregate a variety of militant Lebanese Shia groups into a unified organization. Hezbollah acts as a proxy for Iran in the on-going Iran-Israel proxy conflict. Iran also supported Hezbollah during the South Lebanon conflict (1985–2000).

Arab Spring – Arab Spring 2.0

- **Tunisian Revolution 2010:** Also called the **Jasmine Revolution**, this was a campaign of civil resistance. It led to the ousting of long-time president Zine El Abidine Ben Ali in 2011. It eventually led to a thorough **democratisation of the country**.
- ▶ The effect of Tunisian Revolution **spread strongly to five other countries:** Libya, Egypt, Yemen, Syria and Bahrain; where either the regime was toppled or major uprisings or social violence took place, including riots, civil wars or insurgencies.
- **Egyptian revolution 2011:** In 2011, a mass protest movement took place in Egypt which ultimately **forced long time president Hosni Mubarak from office**. After this a political crisis ensued, with Supreme Council of the Armed Forces taking control of the country until after a series of popular elections, **Muslim Brotherhood came to power in 2012**.
- ▶ However, disputes between elected Islamist president Mohamed Morsi and secularists continued until **Morsi was overthrown in 2013**.
- ▶ **Abdel Fattah el-Sisi**, who announced the overthrow of Morsi, **won the 2014 elections** with a landslide victory and became the

president of Egypt.

- **Yemeni crisis:** Yemeni Crisis **began with the 2011–12 revolution** against President Ali Abdullah Saleh, who had led Yemen for more than three decades. The opposition groups **charged Saleh with financial corruption and criticized him** for being backed by Saudi Arabia and United States. After a mediated agreement between the Yemeni government and opposition groups, President **Saleh left office in 2012**, and former vice president, **Abdrabbuh Mansur Hadi acquired office**.
- ▶ However, the new government struggled to unite the fractious political landscape of the country, especially facing **threats from the Houthi rebels**.
- ▶ **Changing stance of Houthi rebels:** Houthis were initially one among the many oppositions groups against President Saleh, but later in 2014-15, with Saleh's help, Houthis announced the fall of President Hadi's government and took control of most northern parts of Yemen. Later Houthis also executed Saleh on charges of treason.
- ▶ **Houthis in power but not recognised:** Since then, Houthi's are in power and enjoy support. But they have been resisting **Saudi-led military intervention** in Yemen (with intelligence and logistical support of the US), which doesn't recognise the Houthi government and seeks to restore previous government to power. **Houthis are supported by Iran** in their fight against the Saudi coalition.
- ▶ This conflict for power between the two factions has led to the **on-going Yemeni civil war**.

Houthi Rebels

- The Houthi movement is an Islamic, political and armed movement that emerged in 1990s from the Sa'dah region in northern Yemen. The movement acquired its name because its founder is from the Houthi tribe. They are of Zaidi sect, which is a sub-sect under the Shia sect of Islam.
- **Iraqi civil war:** In 2014 the **Iraqi insurgency escalated into a civil war**. The **insurgency was a direct continuation of events following the U.S.-led invasion of Iraq in 2003**. At the time of insurgency, Iraq was led by a Shia-led government which was constantly under attack by Sunni militant groups who targeted Iraq's majority Shia population to undermine confidence in the Shia-led government.
- ▶ **Rise of ISIS:** In 2014, the insurgency escalated dramatically following the conquest of Mosul and major areas in northern Iraq by the Islamic State in Iraq and Syria (ISIS), a Salafi jihadist

militant group and an unrecognised proto-state that follows a fundamentalist, Wahhabi doctrine of Sunni Islam.

- ▶ **Extension of conflict:** After this, in 2014, the conflict merged with the Syrian Civil War, and became a far deadlier conflict. At its height, ISIS held large parts of Iraqi territory. This resulted in forced resignation of the then Iraqi Prime Minister.
- ▶ **Yazidi genocide by ISIS:** ISIS is also the perpetrator of genocide of Yazidis in Iraq. This genocide led to expulsion, flight and effective exile of Yazidis from their ancestral lands in Northern Iraq whose women and girls were forced into sexual slavery by ISIS and whose men were killed by thousands. They were also subjected to forced conversions.
- ▶ **Controlling ISIS:** Finally, United States, along with Canada, Iran, Russia and many other countries launched massive air and ground combat operations to control ISIS. Iraqi Security Forces was provided military and logistical support for this purpose. The civil war ended when victory over ISIS was finally announced in 2017.
- ▶ **Insurgency starting 2017:** After ISIS lost territorial control in the Iraqi civil war began another round of Iraqi insurgency starting late 2017. Several rebel groups, including ISIS and White Flags have since then been fighting the Iraqi military (backed by US).
- ▶ **Note:** A combined force of troops from US, UK, Australia and Poland invaded Iraq in 2003 with an aim to end Saddam Hussein's support for terrorism, whom they **claimed**, had armed **Iraq with chemical weapons of mass destruction**.

Yazidis

- Yazidis are an endogamous, mostly Kurmanji-speaking group of predominantly Kurdish ethnicity, indigenous to Iraq, Syria, and Turkey.

Yazidi practices have roots tracing back to the ancient Mesopotamian religions, but it has mixed elements of Christianity (baptism), Islam (circumcision) and Zoroastrianism (reverence of fire as a manifestation from God). Yazidis have been denounced as infidels by fundamentalists like Al-Qaida and ISIS. Despite many years of oppression and attempts to exterminate them, Yazidis have kept alive their syncretic religion for centuries.

- **Syrian civil war:** The unrest in Syria started as part of a **wider wave of the Arab Spring**. It began in 2011 out of **discontent with the Syrian Ba'athist**

government with protests **demanding President Bashar al Assad's removal**; protesters were violently suppressed.

- ▶ The on-going conflict in Syria is the second deadliest of the 21st century and widely described as a series of **overlapping proxy wars** between the regional and world powers, primarily between US and Russia, as well as between Iran and Saudi Arabia. The war is fought between several factions. (**Refer to mains article "Syrian civil war" for detailed analysis**)

Proxy wars between regional heavyweights

- **Saudi Arabia – Iran:** Saudi Arabia is the major **Sunni power** in the region, Iran is the major **Shia power**, and both represent a fairly extreme version of their respective sects. While Saudi Arabia is the ultraconservative Wahhabi monarchy, Iran is a theocratic near-autocracy. Even though they don't engage in direct conflict, they fight elsewhere, through **supporting opposing sides in nearby conflicts**, including the civil wars in Syria, Yemen, and Iraq.
 - ▶ **Battle for energy resources** exacerbates the situation—Saudi Arabia has the largest oil reserves of any nation, and advocates for moderate prices, while Iran's economic situation dictates that they pursue higher prices worldwide for more immediate gain.
 - ▶ **No diplomatic ties:** Iranian revolution of 1979 had threatened Saudi's influence over the region and it later supported Iraq's invasion of Iran. A 2016 attack on Saudi embassy in Teheran closed all diplomatic ties.
 - ▶ **United States factor:** United States has always been Saudi Arabia's secure ally, where it also has several military bases. United States' concern with Iran is its ability to produce nuclear weapons. But after America's 'pivot to Asia' policy, its lessening reliance on Saudi oil, and potential rapprochement with Iran, Saudi foreign policy had become more assertive.
 - ▶ **Isolating Iran:** In 2015 Saudi Arabia formed the intergovernmental Islamic Military Alliance to Fight Terrorism (IMAF) with the stated goal of combating terrorism. But this coalition excluded Shia-led Iran, Iraq, and Syria; mostly seen as Saudi effort to isolate Iran.
 - ▶ **Isolating nations engaging with Iran:** In 2017, Saudi Arabia imposed a blockade on Qatar, principally to punish it for its cordial relationship with Iran.
 - ▶ **Houthi rebels:** Saudi Arabia, US, and Hadi's Yemeni government have repeatedly accused Iran of supporting Yemen's Houthi rebels with money and arms.

- ▶ **Iran's Shia crescent:** Iran has tried to take advantage of regional instability by expanding its presence in the Shia crescent and creating a land corridor of influence stretching from Iraq to Lebanon, done in part by supporting Shia militias in the war against ISIS.
- ◉ **Saudi Arabia – Turkey:** Turkey and Saudi Arabia always shared an uneasy relationship. Saudi is wary of was **Turkey's constitutionalism and moderate Islam** as it directly challenges **Saudis' absolutist Islamism**. After recent rise of Saudi's Crown Prince, Mohammed bin Salman and adoption of aggressive foreign policies flaunting Saudi power, **Turkish anxiety** is that Saudis intend to dominate the Arab world to the **exclusion not only of Iran but of Turkey as well**.
 - ▶ Turkey has long conceived itself not just a bridge between Asia and Europe but also a central player in regional and global affairs.
 - ▶ **Turkey support for Arab Spring:** During the 2011 Arab Spring, Turkey enthusiastically welcomed the overthrow of authoritarian governments, while Saudi regime, feeling vulnerable itself, strongly opposed it.
 - ▶ **Opposing stand in Egypt:** During the Egyptian crisis, Turkey has supported President Morsi who belonged to the Muslim Brotherhood and represented a constitutionalist Islamist model like Turkey. Saudis however, embraced General Abdel Fattah el-Sisi and granted him aid.
 - ▶ **United States factor:** United States' increasing Saudi importance, and its growing differences with Turkey in the approach towards Syrian Kurds, also sent a signal that Saudi Arabia is the kingpin of America's policy toward West Asia.
 - ▶ **Qatar factor:** Qatar also has close relations with Turkey and hosts a Turkish military base. The Emir of Qatar had sent a contingent of soldiers to provide security to Mr. Erdoğan during his failed military coup in 2016. Saudi Arabia has not well taken this relationship.

- ▶ **Jamal Khashoggi case:** Saudi dissident journalist Jamal Khashoggi's murder in the Saudi Consulate in Istanbul, Turkey, exposed the brutal nature of Saudi regime. Turkey used the Khashoggi murder to sharpen the battle lines with Saudi Arabia.

The Israel Factor

- ◉ Israel is a **Jewish state**, and a **huge American ally, in the midst of a Muslim region**. Israel's relationship with any Arab country comes down to whether or not they support the Palestinian independence movements.
 - ▶ **Opposition:** Currently, Israel is not even recognized as a country by, and has no official diplomatic relations with, Iran, Iraq, Kuwait, Lebanon, Saudi Arabia, Syria, and the U.A.E.
 - ▶ **Support:** Israel has its strongest regional alliance with Egypt. It has a peace treaty and a \$500 million natural gas supply deal with Jordan. It trades with Qatar (even though Qatar has been accused of supporting Hamas). And it maintains a back-channel relationship with Saudi Arabia.
 - ▶ **Political enemies:** Israel's primary political enemies are groups like Hezbollah and Hamas.

◎ CONCLUSION

- ◉ West Asia politics and conflicts is a complicated and multifaceted affair. The dynamics of West Asia politics keep changing and must be viewed through an appropriate historical lens. It cannot be viewed independent of the international players in the region. Presently, the Syrian conflict is the hotspot of West Asia politics. It can be best understood only after a thorough understanding of the many other facets of the region and its history (**Refer to mains article "Syrian civil war"**).

CRIMINAL JUSTICE SYSTEM – PROBLEMS AND SOLUTIONS

CONTEXT

- Recently, Andhra Pradesh cabinet has approved a bill which proposes death penalty in cases of sexual abuse of women and seeks completion of the entire trial along with judgment within 21 days of filing of FIR.

◎ BACKGROUND

- The Criminal Justice System in India is an age-old system primarily based upon the Penal legal system that was established by the British Rule in India.
- The system has still not undergone any substantial changes even after 70 years of Independence. The biggest example could be Section 124A of the Indian Penal Code (IPC) that defines sedition and provides for its punishment.
- The entire Code of Criminal Procedure (Cr.P.C.) was amended in 1973.
- The appointment of the **Vohra Committee** was the very first attempt towards reforming the Criminal Justice System in India. Vohra Committee report (1993) made an observation on the criminalisation of politics and of the nexus among criminals, politicians and bureaucrats in India.
- In 2000, the government formed a panel headed by Justice V.S. Malimath, the former Chief Justice of Kerala and Karnataka, to suggest reform in the century-old criminal justice system.
- The **Malimath Committee** submitted its report in 2003 with 158 recommendations but these were never implemented.
- The Committee felt that the existing system "weighed in favour of the accused and did not adequately focus on justice to the victims of crime."

◎ ANALYSIS

Issues in Criminal Judicial System

◎ Multiplicity of Laws:

- **Andhra Pradesh cabinet's approval to** a bill which proposes death penalty in cases of sexual abuse of women and that seeks completion of the entire trial along with judgment within 21 days of filing of FIR is just another attempt to make another stringent rape laws that will undermine the authority of law.
- After 2012 gang rape amendments to criminal laws were pitched. In 2013, POCSO and CrPc

dealing with rape were made more stringent.

- But in practice we have many stringent rape laws and the only problem is lack of implementation.
- ◎ Criminal Justice is suffering from Inertia
 - **Ineffectiveness:** The purpose of the criminal justice system was to protect the rights of the innocents and punish the guilty, but now-a-days system has become a tool of harassment of common people.
 - **Pendency of Cases:** According to Economic Survey 2018-19, there are about 3.5 crore cases pending in the judicial system, especially in district and subordinate courts, which leads to actualisation of the maxim "Justice delayed is justice denied."
 - **Huge Undertrials:** India has one of the world's largest number of undertrial prisoners.
 - According to NCRB -Prison Statistics India (2015), 67.2% of our total prison population comprises of under trial prisoners.
 - **Investigation:** Police is being a front line of the criminal judiciary system, which played a vital role in the administration of justice. Corruption, huge workload and accountability of police is a major hurdle in speedy and transparent delivery of justice.
 - India has failed to bring a single meaningful change by which justice can be given in a proper order.
 - Parliament passes laws and then it forgets about them
 - They don't care about the interpretation of the laws
 - Judiciary is not prioritizing the criminal cases
 - Executive is not active about filing FIRs and doing investigation
- ◎ **Lack of Infrastructure:**
 - Every outgoing CJI has raised concerns about the lack of infrastructure in the Indian judiciary system
 - There are lot of vacancies in lower judiciary.
 - There is huge work load on lower judiciary

as many new laws have been implemented putting more work pressure on them

- There is a complete mismatch between the number of cases court system has been asked to handle and the human resources (in the form of judges, para-legal personnel, infrastructure, etc.) given.
- **Long delays in Trials**
 - In normal criminal cases it takes 30-40 years to complete the trial.
 - People remain in jails for 10-12 years and then they are absolved of all the charges.
- **Lack of Intention**
 - Lack of intention from executive, legislative and judiciary to create an effective and efficient system for the speedy delivery of justice of rape and aggravated sexual assaults.

Suggestions to Improve the Criminal Justice System

- **Create Specialization of Judges**
 - We can't make separate laws offence wise rather we must reform judicial system to respond to each and every offence in a reasonable time.
 - Give training to judges in criminal laws
- **Create Specialized Criminal Benches**
 - The way we have created special commercial benches we must create special criminal benches in HC and SC for the speedy justice to rape victims and accused.
 - Research studies have shown that 90% of time is given to rich people and only 10% of time is given to poor people.

- **Create Infrastructure**

- Creating infrastructure is indispensable to the speedy disposal of justice in rape cases

- **What sort of Infrastructure**

- Number of judges to be increased
- Technological aids and solutions for filling cases and other judicial processes
- Vacancies to be filled on time
- Increasing Human Resources in the form of para-legal resources

- **Sensitization of people**

- People must be sensitized to the gender issues
- Rape and sexual assaults on women should not be tolerated
- They should be sensitized about the ill effects of mob justice or retributive justice

CONCLUSION

- Our legal system does not permit police officers to kill an accused merely because he is a dreaded criminal, rapist or terrorist. Undoubtedly, the police have to arrest the accused and make them face trial. The right thing to do in rape cases is to appoint senior judges in fast track courts; no adjournments should be permitted, and rape courts should be put under the direct control of High Courts; the district judge should not have any power to interfere, and the trial must be completed within three months.

THE LINK BETWEEN FOOD, NUTRITION, DIET AND NON-COMMUNICABLE DISEASES

CONTEXT

- Delays and dilutions have derailed regulations of packaged and fast foods. Is it time to press the panic button?

◎ BACKGROUND

- The test results of the Environment Monitoring Laboratory at Delhi-based non-profit Centre for Science and Environment (CSE) have unmasked two anomalies:
 - First, food manufacturers blatantly sell products that have unhealthy levels of nutrients.
 - Second, a nexus between the industry and regulating agencies backs this brazen act.

◎ ANALYSIS

- India urgently needs a robust law on labelling and disclosure of nutritional information on food packs.

- The existing Food Safety Standards (Packaging and Labelling) Regulations, 2011, is too weak and ineffective.
- Even something as basic as salt is not mandatorily disclosed.
- But the statutory framework is just not coming along, clearly due to pressure from the powerful junk food industry and the resultant red tape.
- In 2013, Food Safety and Standards Authority of India (FSSAI), the country's food regulator, set up an expert committee to regulate junk food available in schools following an order of the Delhi High Court.
- In 2014, the expert committee, comprising doctors, nutritionists, public health experts, civil society and industry, suggested labelling of calories, sugar, fat, saturated fat and salt on the front of food packs as

LABELLING PROPOSALS

Under the new regulations, companies will have to display nutritional data clearly on front of their product packs

PROVISIONS



CURRENT LAW
FSS (Packaging & Labelling) Regulations, 2011



PROPOSED REGULATION
Draft FSS (Labelling and Display) Regulations, 2019

NUTRITION LABELLING

• Energy (in Kcal)
• Protein (in g)
• Carbohydrate with sugar (in g)
• Total fat (in g)
• Trans fat (in g) [included after law was amended in 2016]
• Saturated fat (in g) [included after law was amended in 2016]

These nutrients are to be declared at the back of pack per 100 g or ml or per serve
Serving size only in case of per serve declaration of nutrients

• Energy (in Kcal)
• Carbohydrate with sugar
• Trans fat
• Cholesterol
• Added sugar
• Protein
• Total fat
• Saturated fat
• Sodium

These nutrients are to be declared at the back of pack per 100 g or ml or per serve

Their per serve contribution to RDA*, considering 2,000 Kcal, 67 g of fat, 22 g of saturated fat, 2 g of trans fat, 50 g of added sugar, and 2,000 mg of sodium will also be declared

Serving measure and number of servings

FRONT-OF-PACK LABELLING

No provision

It has two parts

Upper part declares the amount of energy, saturated fat, trans fat, added sugar and sodium per serve

Bottom part declares per serve percentage contribution to RDA (this block to be coloured red if nutrients, except calories, exceed the defined threshold)

this would help people make an informed choice about the food they eat.

- **D Prabhakaran committee** suggested resolving ambiguities on the correct serving size of packed and fast foods and the exact nutritional information people need.

Junk food monster: Communicating diseases

- A lab study by the Centre for Science and Environment has found extremely high levels of salt, fat and trans fat in junk foods responsible for obesity and non-communicable diseases like hypertension, diabetes and heart ailments.
- Trans fats are deadly. Their intake must be avoided to prevent heart diseases.
- The new trend of unhealthy food habits among the youth in India has put them at a risk of developing obesity, diabetes, heart attack -basically non-communicable diseases (NCDs) accentuated by unhealthy lifestyles.
- NCDs are those diseases that are not caused by an infection and not spread through contact with another person. They are the silent killers of our generation. Nearly two out of three deaths in India are due to NCDs, with heart diseases and chronic obstructive pulmonary disease (COPD) becoming the leading causes of death in the country.

How is Behavioural change possible?

- This behaviour can be changed through socio-ecological approach, which involves influencing both personal and environmental factors of an individual to bring behaviour change.
- Sensitisation programmes to popularise healthy eating among the youth should aim at improving the environment where they spend most of their time.
- Displaying educational posters about healthy eating in the canteen and replacing unhealthy food items offered there with nutritious ones, along with access to clean water, will help instil healthy eating habits among students.
- Group educational sessions about healthy eating help target a larger cohort in the community rather than one-on-one counselling
- Social and digital interventions via internet-based coaching and self-management programmes and introducing mass media campaigns can also encourage youngsters to choose healthy foods.
- The best way to tackle this growing epidemic of NCDs is to focus on creating an environment that supports positive knowledge, attitude and behaviour change around healthy eating habits.

Regulation is crucial

- Along with these programmes targeted at individuals, there needs to be a strong regulation on food labelling that will push the private players in the domestic food industry to show their social responsibility towards the youth of the country.
- Laws and policies to ensure that meals in school follow nutritional guidelines, offering healthy snacks at work meetings and regulating the marketing of unhealthy foods and beverages, could go a long way in supporting and sustaining healthy behaviours.
- The government of India has taken cognizance of this situation and the Safe and Nutritious Food campaign by the Food Safety and Standards Authority of India (FSSAI) that is helping people adopt the habit of eating safe and eating right.

Why NCDs need to be considered when addressing major nutritional challenges

- **Foods, diets and nutritional status are important determinants of non-communicable diseases:** What we eat and our nutritional status can affect cardiovascular diseases, some types of cancer and diabetes. Foods, diet and nutritional status, including overweight and obesity, are also associated with elevated blood pressure and blood cholesterol, and resistance to the action of insulin.
- **NCDs affect people in every corner of the world:** Of 52.8 million deaths worldwide, 34.5 million were due to NCDs, including cardiovascular diseases (coronary heart disease, cerebrovascular diseases such as strokes, and peripheral vascular diseases), diabetes, cancers and chronic respiratory diseases.
- **Populations around the world are increasingly exposed to foods and diets that influence the risk of developing NCDs:** Globally, calories obtained from meat, sugars and oils and fats have been increasing during recent decades, and those from fibre-rich foods such as whole grains, pulses and roots have been declining. Consumption of processed and convenience foods continue to rise rapidly.
- **Under nutrition places people at risk of developing NCDs:** Under nutrition, and its effects on growth, development and maturation, has numerous detrimental outcomes, including the potential to increase risk of developing an NCD later in life.
- **Food systems present challenges to the prevention and control of NCDs as well as under nutrition:** Food systems have undergone dramatic changes in past decades. Global food system changes have also had dramatic implications for NCDs by influencing the nutritional quality of

foods that are available, affordable and acceptable to consumers.

- **A more concerted response is needed for policy actions, governance and monitoring and evaluation:** The World Health Organization (WHO) has led the way in developing this global response to NCDs. They have put into place a global architecture for addressing NCDs, including recommendations on population-based actions and monitoring frameworks with targets and indicators. Greater coordination is needed between this process and actions being taken to address under nutrition and challenges in the food system at the global, regional and national levels.

Recommendations for priority actions

- **Key actions for national governments:** Develop and implement a comprehensive range of well-targeted policy actions to provide an environment conducive to nutritious, healthy diets. This should

include the options set out in WHO and UN documents and take a coordinated approach to under nutrition, obesity and NCDs.

- **Key actions for international health, food and development agencies:** The institutional architecture for NCDs and nutrition should be strengthened to ensure different UN agencies and programmes work more effectively together, engage in constructive dialogue, and agree on common objectives.
- **Key actions for researchers:** Researchers should engage proactively with the monitoring and evaluation of policy actions in order to build the evidence base, and communicate the full range of available evidence clearly and consistently to policymakers.
- **Key actions for donors and research funders:** Support capacity building for effective policy development in governments, the development of a trained workforce of public health nutrition

N O U R I S		H	I N G
FOOD ENVIRONMENT		FOOD SYSTEM	BEHAVIOUR CHANGE
	POLICY AREA	POLICY ACTIONS FOR NUTRITION AND NCDs	
N	Nutrition label standards and regulations on the use of claims and implied claims on foods	Nutrition labelling that is clear and concise, such as interpretative signals, on all packaged foods	
O	Offer healthy foods and set standards in public institutions and other specific settings	Offer healthy foods in school feeding, social safety net programmes and other institutional settings, including the use of behavioural incentives	
U	Use economic tools to address food affordability and purchase incentives	Use financial instruments, such as health-oriented cash transfer programmes, and well-targeted taxes and healthy food subsidies	
R	Restrict food advertising and other forms of commercial promotion	Restrict advertising and promotion of breast-milk substitutes, and of unhealthy foods especially to children	
I	Improve nutritional quality of the whole food supply	Improve the nutritional quality of the food supply, such as through community food production, biofortification and reformulation	
S	Set incentives and rules to create a healthy retail and food service environment	Set incentives and rules for retailers and traders to ensure a healthier community food environment	
H	Harness the food supply chain and actions across sectors to ensure coherence with health	Harness the power of other sectors to improve nutrition governance and policy coherence	
I	Inform people about food and nutrition through public awareness	Inform the public and private sector about nutrition and health, the role of government policy, and the need for responsible corporate actions	
N	Nutrition advice and counselling in health care settings	Nutrition interventions, including support for breastfeeding and complementary feeding, and dietary counselling in primary care	
G	Give nutrition education and skills	Give training and education to increase skills, including targeted health literacy to health workers	

professionals, and advocacy in civil society organisations.

- **Key actions for civil society:** Civil society should act as advocates and watchdogs, by monitoring

and assessing policy actions being taken by government agencies and commercial operators and their impact on nutrition and NCDs.

◎ CONCLUSION

- Reports present alarming figures for the prevalence of obesity and non-communicable diseases. Overweight and obesity are potent risk factors for cardiovascular diseases and type 2 diabetes and are major contributors to premature death.
- The escalating level of overweight and obesity among children and adolescents is of particular concern, given the recent evidence linking childhood and adolescent obesity to increased risk of obesity and morbidity in adulthood.

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OPERATION TWIST

◎ CONTEXT

- The Central Bank announced that it will conduct simultaneous sale and purchase of ₹10,000 crore of government securities of varying tenor. This move is on the lines of US Federal Reserve's Operation Twist.

◎ ABOUT

- The Reserve Bank of India (RBI) announced simultaneous sale and purchase of government bonds. RBI will sell short-term bonds of ₹10,000 crore, it will also purchase long-term securities of the same value.
- **Operation Twist of United States:** RBI's move resembles the 2011 Operation Twist of the US Federal Reserve Bank. It was intended to make long-term borrowing cheaper and spur bank lending. The Fed had swapped short-term bonds for longer-term debt.
- **Difference with the US version:** US version of the Operation Twist had started mid-2011 and lasted till late-2012. In case of RBI it is not clear if this is a one-time exercise or part of continuing operations.
- **Aim:** The hope is that with yields coming down, banks will cut lending rates given that lending to the government is deemed to be the safest, and if that comes down, so should the remaining rates as well.

How does Operation Twist get its name?

- The **US Federal Reserve was the first central bank** that attempted such an exercise of buying and selling government securities at the same time. This happened in 1961.
- At that time, **the "twist" was a new dance craze sparked by singer Chubby Checker**. Since then the name for such an exercise carried out by a central bank has stuck.
- **Used as a measure in the financial crisis:** Much later, Operation Twist was tried in the US in the aftermath of the financial crisis. In this case, the Federal Reserve purchased government securities with maturities varying from six years to 30 years and sold government securities with maturities of three years or less.
- **The idea is to twist the yield curve:** The yield curve is a graph that plots the yields of government securities (or other financial securities) of different maturities.
 - The yield is the per-year return an investor can earn on a financial security by staying invested in it till maturity.
 - When a central bank buys government securities, the prices go up. At a higher price, the yields or the returns come down as the interest paid on the securities stays the same.
 - Vice versa, when the bank sells government securities, the prices fall and the return or the yield on the security goes up.
 - This creates a visual effect of a twist in the yield curve.

Why did long term yields increase?

- **No response to monetary easing:** Over the past few months, long-term bonds failed to respond to RBI monetary easing. In fact, the long term 10-year premium widened against the repo rate to 140-150 basis points (bps).
- **Widening yield gap:** While the term premium for long term bonds touched around 150 bps, the short term yields had fallen below RBI's benchmark repo rate of 5.15%, making the yield curve steeper.
- **Fears of fiscal slippage:** There have been fears of fiscal slippage. There are concerns that the government's borrowing programme will be exceeded because there are problems on the fiscal side; i.e. it might borrow more to meet its fiscal deficit target.

- **Pause on rate cuts:** After lowering its repo rate by 135bps in five consecutive rate cuts in 2019, the central bank's monetary policy committee (MPC) decided to keep rates on hold for the meanwhile.
 - The MPC wants to wait for further government measures in the forthcoming budget and take a note of the effects of future policy actions before taking a decision to cut rates.

Benefits of RBI's Operation Twist

- **Yield anomaly corrected:** With RBI's Operation Twist the net liquidity in the system will remain unchanged, but the anomaly between the yields of short and long-term bonds will be corrected.
 - As RBI will buy long-term bonds, its demand will go up and yields will go down and the opposite will happen when it sells bonds.
 - Through this, the central bank is narrowing out the differential between the short- and long-term yields, and will flatten the yield curve.
- **Spur private borrowing:** The simultaneous sale and purchase of government bonds may aid governments borrowing plan by making it cheaper. It is expected to dampen term premium to stimulate private sector borrowing.
 - With the long-term yields coming down, government will be able to borrow money cheaper against its bonds, as well as induce demand for private sector loans.

Will money supply increase because of RBI's move?

- If the central bank buys government securities a few times, it will increase the money supply in the economy, which is likely to lead to higher inflation, with a greater amount of money chasing the same amount of goods and services.
- But by selling securities worth a similar amount, RBI will not end up increasing the money supply because of this operation.

How can this be made to have an effective impact?

- **A one-off operation will not help:** The idea is to drive down the yields on 10-year government securities. This can happen if the government continues with Operation Twist. A one-off operation will not help and yields will climb back soon.

TRIPURA GETS ITS FIRST SEZ

◎ CONTEXT

- The Ministry of Commerce and Industry has notified the setting up of the first ever Special Economic Zone (SEZ) in Tripura.
- It will be developed by Tripura Industrial Development Corporation (TIDC) Ltd.

◎ ABOUT

- The SEZ is being set-up at Paschim Jalefa, Sabroom, South Tripura District, which is 130 km away from Agartala.
- It will be a Sector Specific Economic Zone for Agro-Based Food Processing.
- The estimated investment in the project will be around 1550 Crore.
- The SEZ is estimated to generate 12,000 skilled jobs.
- Rubber based industries, textile and Apparel Industries, bamboo and Agri-food Processing Industries will be set-up in the SEZ.
- Setting up of the SEZ in Sabroom will open up new avenues to attract private investment considering the proximity of the Chittagong Port and construction of the bridge across Feni River in South Tripura which is underway.

- After it is set up, 100 percent Income Tax exemption will be provided on export income for SEZ units under Section 10AA of the Income Tax Act for the first 5 years.
- Also 50 percent exemption will be provided for the next 5 years and 50 percent of the ploughed back export profit for another 5 years.

SEZs-

- A special economic zone (SEZ) is an area in which the business and trade laws are different from the rest of the country.
- SEZs are located within a country's national borders, and their aims include increased trade balance, employment, increased investment, job creation and effective administration.
- To encourage businesses to set up in the zone, financial policies are introduced. These policies typically encompass investing, taxation, trading, quotas, customs and labour regulations.
- Additionally, companies may be offered tax holidays, where upon establishing themselves in a zone, they are granted a period of lower taxation.
- The benefits a company gains by being in a special economic zone may mean that it can produce and trade goods at a lower price, aimed at being globally competitive.

Special Economic Zones in India-

- India was one of the first in Asia to recognize the effectiveness of the Export Processing Zone (EPZ) model in promoting exports, with Asia's first EPZ set up in Kandla in 1965.
- The second EPZ, SEEPZ (Santa Cruz Electronics Export processing Zone) was set up in Maharashtra in 1974.
- In April 2000, the Government of India adopted a new policy framework titled 'Export and Import Policy 2000' for the establishment of public, private or joint public-private SEZs.
- India witnessed remarkable growth in number of formal, notified and operational approvals post enactment of SEZ Act in 2005. The spread of SEZs within the States is to achieve balanced growth across all regions of the country.
- The sector wise distribution of SEZ's clearly shows that majority of the formal approvals granted have been in IT/ITES sector which comprises nearly 64% of the total formal approvals granted till date.
- The SEZ scheme in India has shown a tremendous growth in infrastructure investment, employment and exports.

Conclusion-

- SEZs policy in India with respect to frequent changes in the policy environment is one of the major reasons of slackening the confidence of investors to continue and make fresh investments in SEZs. Therefore, to build a strong confidence amongst the potential/existing investors, it is imperative to frame a stable, favourable and highly transparent SEZs policy with long term perspectives.

H1-B VISAS

◎ CONTEXT

- **United States government has said that it is planning to curb the distribution of H-1B visa to Indians. While the final decision is yet to be taken, Government of India has expressed concerns to the US over the proposal.**

◎ ABOUT

- The US government had recently said that it is planning to curb the distribution of H-1B visa to Indians. Hence, at the 2+2 dialogue with the US, India pitched its stand for H-1B visa holders.

- **Objective:** The reason H-1B visas may see changes is **to better protect US workers and wages**, and **save them from competition** from workers arriving from outside countries like India and China.
- **H-1B visa:** The H-1B is a United States visa under the Immigration and Nationality Act. It has roots in the earlier issued H-1 visa which was later split between H-1A (for nurses) and H-1B. H-1B is one of the most popular visas for foreigners visiting the US for business or trade purpose.
 - It is a **non-immigrant visa** that allows US companies to employ foreign workers in speciality occupations that require **theoretical or technical expertise**.
 - Speciality occupations include specialized fields like IT, finance, accounting, architecture, engineering, mathematics, science, medicine, etc. which usually require a **bachelor's degree or higher**.
 - US employers wishing to bring in staff for long-term assignment prefer H1B visa because its application is **quicker than applying for a US Green Card**.
 - H-1B visa has its **roots in the H1 visa** of the Immigration and Nationality Act; which **split between H-1A (for nurses) and H-1B** in 1990.
- **Who will be worst hit:** Worst hit by the new H1B bill will be Indian companies such as Infosys, TCS, and Wipro, as well as US tech giants like Apple, Facebook and Google, who use the H1B visa to fill positions that cannot be filled by American workers.

How is H-1B visa important to India?

- **Majority H-1B visa holder:** India has been the only country that takes **70 per cent** of the 85,000 H-1B visas applied annually. The H-1B visa is crucial for the IT sector in India.
- **IT professionals:** The technology companies of US depend on it to hire tens of thousands of employees each year from countries like India and China. Hence, a cancellation of H-1B visas will most adversely affect Indian IT professionals.
- **Talent flow:** The US should not obstruct the flow of talent from India as it is an important part of the **economic cooperation** and almost acts as a strategic bridge between the two countries, and is important for the bilateral ties.

Problems that Indians face with current H-1B rules

- **Recent changes in H-1B visa rules:** Recently, US proposed **revision of "specialty occupations" definition** for the H1B visa. H1B visas will be issued to only the most-skilled foreigners or highest-paid beneficiaries.
 - USCIS **can reject** H1B applications that do not provide the necessary required information when submitted.
 - New rules require H-1B petitioners to **first electronically register with USCIS**.
 - US can initiate **deportation** of expired H1-B holders.
 - US Department of Homeland Security (DHS) is also **considering ban on work authorization for spouses** of H-1B visa holders.
- **Problem in job switch:** H-1B visa holders in the US face problems in switching jobs even if the new job requires the exact same skill set as before. The US citizenship and Immigration Services (USCIS) has denied several applications by new employers citing that the new position does not constitute a 'specialty occupation'.
 - If the H-1B holder starts working elsewhere and the transfer is denied, the person could be 'out of status' with a bar on entry into the US, unless the old employer is willing to take him/her back.
- **Removing country-cap on green cards:** Recently, US also **removed 7% country-cap** on issue of Green Cards. This too will agonise the wait of many skilled professionals from India who had sought permanent residency in USA.

RHINOS TO BE RE-INTRODUCED IN UTTARAKHAND

◎ CONTEXT

- The Uttarakhand State Wildlife Board has cleared a proposal by the Wildlife Institute of India (WII) to introduce rhinoceroses in the Corbett Tiger Reserve (CTR) to boost tourism and revive the habits of species that survive on low-height grass.

◎ ABOUT

- According to officials, around 10 rhinos will be brought in CTR in the first phase and subsequently, 10 more would be added.
- Experts claim that protecting these rhinos from poaching will be the only challenge for the state's forest department staff after the move.
- The geographical terrain and environmental conditions in CTR are suitable for rhinos.
- The ideal sites chosen in Corbett are valley habitats bounded on either side by the lower Himalayas (north), Shivalik Hills (south) and the Ramganga Reservoir (east), which would also act as natural barriers to rhino movement outside these area, thereby minimising conflict with people.

Benefits from this move-

- According to wildlife experts, rhinos reduce the size of elephant grass by eating it.
- This would mean that species that thrive on lower-height grass — Hog Deer, Cheetal, Sambar and Swamp Deer, among others — would also be encouraged.
- According to WII experts, the rhino's range was once continuous across the flood plains of the Indus, Ganges and the Brahmaputra, but today, it is limited to small fragmented pockets in India and Nepal as a result of anthropogenic pressures.
- Re-introduction into habitats in its historic range would not only create safety-net populations for the species but also restore their ecological role in these faunally-degraded habitats.

About One-horn Rhino-

- The Indian rhinoceros also called the greater one-horned rhinoceros and great Indian rhinoceros, is a rhinoceros species native to the Indian subcontinent.
- It is listed as Vulnerable on the IUCN Red List.
- The Indian rhinoceros once ranged throughout the entire stretch of the Indo-Gangetic Plain, but excessive hunting and agricultural development reduced its range drastically to 11 sites in northern India and southern Nepal.
- It inhabits the alluvial grasslands of the Terai and the Brahmaputra basin.
- The Indian rhinoceros is regionally extinct in Pakistan.
- There are about 2,600 rhinos in India, with more than 90% of the population concentrated in Assam's Kaziranga National Park. Outside Kaziranga, rhinos are found in West Bengal, Uttar Pradesh, and Bihar.
- Kaziranga National Park in Assam, India, holds about 70% of the world population. This is worrisome for two reasons – the park may have reached its carrying capacity and might not be able to support any more rhinos; and the entire species' population could decimated because by a disease outbreak, natural disaster, or another acute threat.

About Jim Corbett National Park-

- It is the oldest national park in India and was established in 1936 as Hailey National Park to protect the endangered Bengal tiger.
- It is located in Nainital district and Pauri Garhwal district of Uttarakhand and was named after Jim Corbett, a well known hunter and naturalist.
- The park was the first to come under the Project Tiger initiative in 1973.

Indian Rhino Vision 2020-

- It is an ambitious effort to attain a wild population of at least 3,000 greater one-horned rhinos spread over seven protected areas in the Indian state of Assam by the year 2020.
- IRF has partnered with the Assam Forest Department, the Bodoland Territorial Council, the World Wide Fund for Nature (WWF), and the US Fish & Wildlife Service to address the threats facing Indian rhinos.

WHY INDIA NEEDS A PROJECT DOLPHIN

◎ CONTEXT

- The government is planning to launch a programme called “Project Dolphin”, along the lines of “Project Tiger” to enhance the population of these dolphins.

◎ ABOUT

- The Gangetic river dolphins can only live in freshwater, are blind and catch their prey in a unique manner, using ultrasonic sound waves.
- The Gangetic river dolphins were officially discovered in 1801 and are one of the oldest creatures in the world along with some species of turtles, crocodiles and sharks, according to the World Wildlife Fund (WWF).
- They once lived in the Ganges-Brahmaputra-Meghna and Karnaphuli-Sangu river systems of Nepal, India, and Bangladesh, but are now mostly extinct from many of its early distribution ranges, as per WWF.
- In 2009, the Gangetic dolphin was declared India's National Aquatic animal. Gangetic dolphin has been notified by the Assam as the state aquatic animal too.
- It is placed under the “endangered” category by the International Union for Conservation of Nature (IUCN).
- They are distributed across seven states in India: Assam, Uttar Pradesh, Madhya Pradesh, Rajasthan, Bihar, Jharkhand and West Bengal.
- Their numbers have dwindled in the last few decades mainly because of direct killing, habitat fragmentation by dams and barrages and indiscriminate fishing.

Efforts made in India to protect the dolphins?

- Setting up of the Conservation Action Plan for the Gangetic Dolphin (2010-2020), which has identified threats to Gangetic dolphins and impact of river traffic, irrigation canals and depletion of prey-base on dolphin populations.
- Gangetic dolphins have been included in Schedule -I of the Wildlife Protection Act, 1972, which means they have the highest degree of protection against hunting.
- They are also one among the 21 species identified under the centrally sponsored scheme, “Development of Wildlife Habitat”.

Threats to Gangetic river dolphin

- **Pollution:** It faces a number of threats such as dumping of single-use plastics in water bodies, industrial pollution, and fishing.
- **Restrictive Flow of Water:** The increase in the number of barrages and dams is also affecting their growth as such structures impede the flow of water.
- **Poaching:** Dolphins are also poached for their flesh, fat, and oil, which is used as a prey to catch fish, as an ointment and as a supposed aphrodisiac.
- **Shipping & Dredging:** It is also called a blind dolphin because it doesn't have an eye lens and uses echolocation to navigate and hunt.

Project Tiger

- Its aim is to protect tigers from extinction by ensuring a viable population in their natural habitats.
- The project was launched in Jim Corbett National Park of Uttarakhand in 1973.
- India has more than 80 national parks and 441 Sanctuaries of which some have been declared as Tiger reserves.
- Tiger reserves are governed by the Project Tiger (1973).
- It is a Centrally Sponsored Scheme of the Ministry of Environment and Forests.
- It is administered by the National Tiger Conservation Authority.

ACCESSIBLE INDIA CAMPAIGN (SUGAMYA BHARAT ABHIYAN)

◎ CONTEXT

- The Accessible India Campaign also known as the Sugamya Bharat Abhiyan was launched in 2015 by Prime Minister. The project that aimed to make the country accessible for people with disabilities is yet to meet its target. The government has announced that deadline of Accessible India campaign has been extended.

◎ ABOUT

- Accessible India Campaign (Sugamya Bharat Abhiyan) is a nation-wide Campaign launched by Department of Empowerment of Persons with Disabilities (DEPwD) of Ministry of Social Justice & Empowerment to provide universal accessibility to persons with disabilities.
- The campaign aims at providing equal opportunity to persons with disabilities to participate in all the aspects of life and live independently. The Sugamya Bharat Abhiyan focuses on developing accessible physical environment, transportation system and Information & communication ecosystem.
- The Government of India with firm commitment towards socio-economic transformation of the persons with disabilities is making efforts to create mass awareness for universal accessibility.
- India is a signatory to the UN Convention on the Rights of Persons with Disabilities (UNCRPD).

Components of Accessible India Campaign

- Accessible India Campaign (Sugamya Bharat Abhiyan) has the following three important components
 - Built Environment Accessibility
 - Transportation System Accessibility
 - Information and Communication Eco-System Accessibility

United Nations Convention on the Rights of Persons with Disabilities (UNCRPD)

- To develop, promulgate and monitor the implementation of minimum standards and guidelines for the accessibility of facilities and services open or provided to the public;
- To ensure that private entities that offer facilities and services which are open or provided to the public take into account all aspects of accessibility for persons with disabilities;
- To provide training for stakeholders on accessibility issues facing persons with disabilities;

- To provide in buildings and other facilities open to the public signage in Braille and in easy to read and understand forms;
- To provide forms of live assistance and intermediaries, including guidelines, readers and professional sign language interpreters, to facilitate accessibility to buildings and other facilities open to the public;
- To promote other appropriate forms of assistance and support to persons with disabilities to ensure their access to information;
- To promote access for persons with disabilities to new information and communications technologies and systems, including the Internet.

Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995

- Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995 under Sections 44, 45 and 46 categorically provides for non-discrimination in transport, non-discrimination on the road and non-discrimination in built environment respectively.
- As per Section 46 of the PwD Act, the States are required to provide for –
 - Ramps in public buildings;
 - Adaptation of toilets for wheel chair users;
 - Braille symbols and auditory signals in elevators or lifts;
 - Ramps in hospitals, primary health centres and other medical care and rehabilitation institutions
- Section 44 and 45 of the said Act cast responsibility on the States to take measures to make public transport accessible for PwDs and also make provision for auditory signals at red lights in public roads, curb cuts and slops in pavements, engraving on the surface at zebra crossings etc.

NITI AAYOG TO DRAFT ROADMAP FOR ACHIEVING POPULATION STABILISATION

◎ CONTEXT

- The NITI Aayog is going to draft a roadmap for achieving population stabilisation in collaboration with the Population Foundation of India (PFI).
- It is organising a National Consultation titled “Realizing the vision of population stabilization: leaving no one behind”.

◎ ABOUT

- The working paper is expected to address key gaps in India's family planning programmes. India, with a current population size of 1.37 billion, has the second largest population in the world.
- It will offer constructive recommendations to address regional disparities in outcomes by focusing on adolescents and youths, inter-departmental convergence, demand generation, access to contraceptive services and quality of care.
- The Aayog said that India is at a stage where birth rates are falling but the population continues to grow due to the fact that more than 30 per cent of the population is young and in the reproductive age group.

Key Recommendations-

- Increasing the basket of contraceptive choices, with greater focus on spacing methods and helping women make informed choices about delaying pregnancy and spacing between children.

- Addressing social determinants of health such as age at marriage and sex-selective practices.
- Strengthening quality of care, including counselling services, managing side effects and family planning support.
- Increasing budgetary allocations for family planning, to align with the unmet needs of India's young people who constitute nearly 30 per cent of our population.
- Addressing existing socio-cultural barriers towards contraception by investing extensively in innovative behaviour-change communication strategies.
- Treating population stabilisation and family planning as a national priority, fostering inter-departmental convergence and ensuring multi sectoral participation and integration.

Need for such move-

- India, with a current population size of 1.37 billion, has the second largest population in the world.
- Nearly 30 million currently married women in the age group of 15-49 years within this critical cohort of young people have unmet needs in family planning, which limit their ability to delay or avoid pregnancy by not having access or the agency to use contraception.
- Family planning is considered universally as the smartest development investment.
- For India to realize its sustainable development goals and economic aspirations, it is important to ensure that people have informed access to contraception and quality family planning services.

PRADHAN MANTRI MATRU VANDANA YOJANA

◎ CONTEXT

- Three years after a pan-India maternity benefit programme promising ₹6,000 to new mothers was first announced, the chorus on its many exclusions is growing louder leading to a demand for a scheme that is truly universal.

◎ ABOUT

- Pradhan Mantri Matru Vandana Yojana (PMMVY) is a Maternity Benefit Programme that is implemented in all the districts of the country in accordance with the provision of the National Food Security Act, 2013.
- It is a conditional Maternity Benefit Programme launched by the Ministry of Women and Child Development.
- Providing partial compensation for the wage loss in terms of cash incentives so that the woman can take adequate rest before and after delivery of the first living child.
- All Pregnant Women and Lactating Mothers, excluding PW&LM who are in regular employment with the Central Government or the State Governments or PSUs or those who are in receipt of similar benefits under any law for the time being in force are eligible.
- A beneficiary is eligible to receive benefits under the scheme only once.
- In case of miscarriage/still birth, the beneficiary would be eligible to claim the remaining instalment(s) in event of any future pregnancy.

Tedious documentation

HOW PMMVY EXCLUDES

1 Only for the first born



2 Provided after meeting several conditionalities -registration of pregnancy, at least one ante-natal check-up, registration of child birth and vaccinations

3 Proof of address of marital home

4 Husband's Aadhaar card


5 Minimum age of 19 years

6 Father and mother need to give separate undertaking that the child is the first living child for both of them

LIST OF DOCUMENTS

- Total 6 application forms to be filled, with total 30 of 32 pages to be filled by the beneficiary
- As many as 9 IDs to be produced: copy of Aadhaar card (or enrolment slip), copy of Identity proof, copy of Voter ID card (as age proof) for both husband and wife, copy of ration card (as proof of address of marital home), copy of passbook, Mother and Child Protection Card



Objectives of the scheme

- Providing partial compensation for the wage loss in terms of cash incentives so that the woman can take adequate rest before and after delivery of the first living child.
- The cash incentive provided would lead to improved health seeking behaviour amongst the Pregnant Women and Lactating Mothers (PW& LM).

Target beneficiaries of the scheme

- All Pregnant Women and Lactating Mothers, excluding PW&LM who are in regular employment with the Central Government or the State Governments or PSUs or those who are in receipt of similar benefits under any law for the time being in force.
- All eligible Pregnant Women and Lactating Mothers who have their pregnancy for first child in family.
- The date and stage of pregnancy for a beneficiary would be counted with respect to her LMP date as mentioned in the MCP card.
- Case of Miscarriage/Still Birth :
 - A beneficiary is eligible to receive benefits under the scheme only once.
 - In case of miscarriage/still birth, the beneficiary would be eligible to claim the remaining instalment(s) in event of any future pregnancy.
 - Thus, after receiving the 1st instalment, if the beneficiary has a miscarriage, she would only be eligible for receiving 2nd and 3rd instalment in event of future pregnancy subject to fulfilment of eligibility criterion and conditionalities of the scheme. Similarly, if the beneficiary has a miscarriage or still birth after receiving 1st

and 2nd instalments, she would only be eligible for receiving 3rd instalment in event of future pregnancy subject to fulfilment of eligibility criterion and conditionalities of the scheme.

- Case of Infant Mortality: A beneficiary is eligible to receive benefits under the scheme only once. That is, in case of infant mortality, she will not be eligible for claiming benefits under the scheme, if she has already received all the instalments of the maternity benefit under PMMVY earlier.
- Pregnant and Lactating AWWs/ AWHs/ ASHA may also avail the benefits under the PMMVY subject to fulfilment of scheme conditionalities.

Benefits under PMMVY

- Cash incentive of Rs 5000 in three instalments i.e. first instalment of Rs 1000/- on early registration of pregnancy at the Anganwadi Centre (AWC) / approved Health facility as may be identified by the respective administering State / UT, second instalment of Rs 2000/- after six months of pregnancy on receiving at least one ante-natal check-up (ANC) and third instalment of Rs 2000/- after child birth is registered and the child has received the first cycle of BCG, OPV, DPT and Hepatitis - B, or its equivalent/ substitute.
- The eligible beneficiaries would receive the incentive given under the Janani Suraksha Yojana (JSY) for Institutional delivery and the incentive received under JSY would be accounted towards maternity benefits so that on an average a woman gets Rs 6000.

THE DRAFT NATIONAL STATISTICAL COMMISSION BILL

◎ CONTEXT

- Draft Bill proposes autonomy for National Statistical Commission which gives government power to make final decision.
- It is put out by Ministry of Statistics & Programme Implementation and is open for public suggestions until 19 January.

◎ ABOUT

- The draft bill is aimed at empowering the National Statistical Commission (NSC) to become the nodal body for all core statistics in the country.
- Core statistics include national income statistics like GDP, jobs data, industry data and budgetary transactions data.

Features of the Bill-

- As per the draft Bill, the NSC will have a Chairperson, five whole time members along with Deputy Governor of Reserve Bank of India (RBI), Chief Statistician of India (CSI) as other members and Chief Economic Advisor, Ministry of Finance, as the ex-officio member.
- The Chairman and the members of the Commission shall be appointed by the central government on the recommendation of a search committee.
- Along with retaining the advisory nature of NSC, the draft Bill states that the decision of the central government, whether a question is of policy or not, shall be final.
- As per the experts, this proposal goes against the long pending demand to grant more powers to the NSC.
- The draft Bill also seeks to change the composition of the Commission by replacing NITI Aayog Chief Executive Officer with the Finance Ministry's Chief Economic Advisor as the ex-officio member along with giving member status to Chief Statistician of India from the current status of secretary to the NSC.

- As per the draft Bill the central government may, from time to time, issue directions to the Commission as it may think "necessary in the interest of the sovereignty and integrity of India, the security of the State, friendly relations with foreign states, public order, decency or morality".
- The draft also specifies that the Commission "shall in exercise of its powers or the performance of its functions, be bound by such directions or questions as the Central Government may give in writing to it from time to time".
- The draft Bill states that the government shall seek advice from the Commission on any matter relating to official statistics.
- However, central government or a state government may issue directions as necessary to any government agency under its administrative control along with a report on reasons for not accepting any advice to the commission.
- A report on reasons for not accepting any advice of the commission shall be laid before Parliament or a state legislature for a total period of thirty days.
- The draft Bill states that the NSC shall have power to review the statistical system of any government agency in the light of concepts, definitions, standards, methodologies and established policies, and recommend measures for enhanced performance; to prescribe a code of practice.
- Also, the Commission shall participate in consultation with the central government and coordinate with national statistical organisations on matters of statistical standards, methodologies and classifications.

Timing of the Draft bill-

- The draft bill has been released at a time when the government has been facing criticism from several quarters over interference in the release of crucial data unfavourable to it.
- For example, the government withheld jobs data that showed the unemployment rate at a 45-year high, releasing it only six months later, after the general elections.
- The Bill comes at a time when several statistical reports such as the unemployment survey were withheld and consumption expenditure survey was decided to be not released by the government.

About NSC:

- The National Statistical Commission (NSC) of India is an autonomous body which was formed in July 2005.
- The objective of its commission is to reduce the problems faced by statistical agencies in the country in relation to collection of data.

HYDROGEN-BASED CARS

◎ CONTEXT

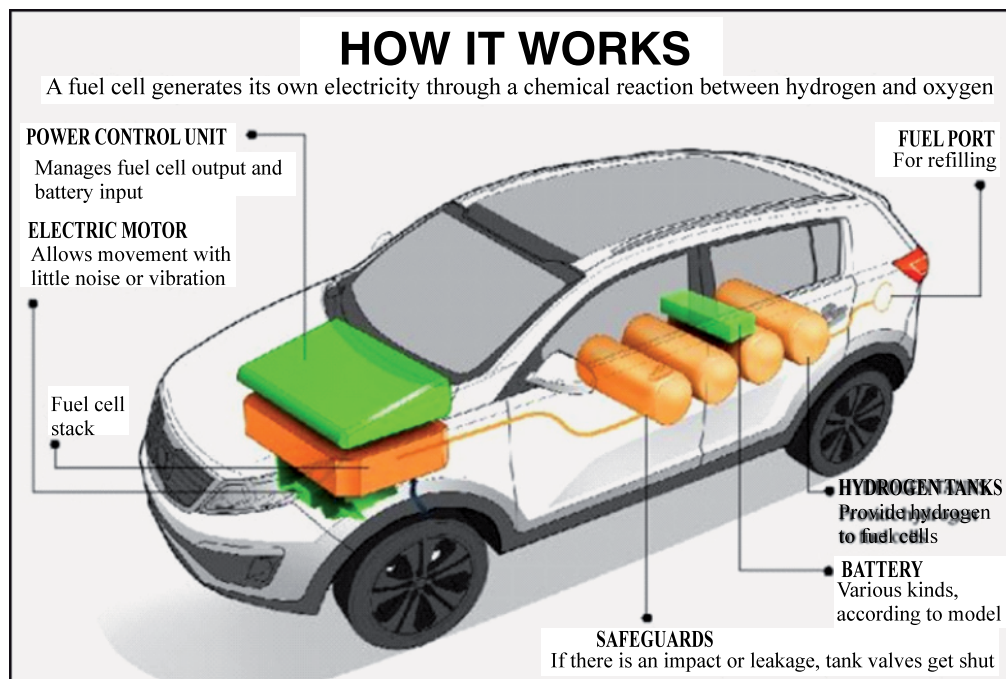
- Recently, Supreme Court has asked government to look into the feasibility of hydrogen-based technology to deal with vehicular air pollution in capital.

◎ ABOUT

- A hydrogen car is a vehicle that uses hydrogen fuel for motive power (energy used to drive machinery).
- Hydrogen vehicles include hydrogen-fueled space rockets, as well as automobiles and other transportation vehicles.
- The power plants of such vehicles convert the chemical energy of hydrogen to mechanical energy either by burning hydrogen in an internal combustion engine, or by reacting hydrogen with oxygen in a fuel cell to run electric motors.

- Widespread **use of hydrogen for fueling transportation is a key element of a proposed hydrogen economy.**
- **India is looking closely at Japan**, which has made progress in this field.

How does the hydrogen fuel cell work?



- At the heart of the fuel cell electric vehicles (FCEV) is a device that uses a source of fuel, such as hydrogen, and an oxidant to create electricity by an electrochemical process.
- The fuel cell combines hydrogen and oxygen to generate electric current, water being the only byproduct.
- Like conventional batteries under the bonnets of automobiles, hydrogen fuel cells too convert chemical energy into electrical energy.
- From a long-term viability perspective, FCEVs are billed as vehicles of the future, given that hydrogen is the most abundant resource in the universe.

Uses of this Technology

- The hydrogen fuel cell vehicle market is dominated by Japan's Toyota and Honda, alongside South Korea's Hyundai.
- The successful development of hydrogen would provide energy for transportation and electric power.
- The advantage is the wide availability of resources for producing hydrogen fuel cells.

What are the advantages and disadvantages of fuel cells?

Advantages

- They produce much smaller quantities of greenhouse gases and none of the air pollutants that cause health problems.
- Pure hydrogen fuel cells emit only heat and water as a byproduct. Such cells are also far more energy efficient than traditional combustion technologies.

- Unlike battery-powered electric vehicles, fuel cell vehicles do not need to be plugged in.

Disadvantages

- The process of making hydrogen needs energy — often from fossil fuel sources that has raised questions over hydrogen's green credentials.
- Questions of safety are of great concern as hydrogen is more explosive than petrol.
- The vehicles are expensive, and fuel dispensing pumps are scarce. But this should get better as scale and distribution improves.

What is the progress in India?

- In India, so far, the definition of EV only covers BEVs; the government has lowered taxes to 12%. At 43%, hybrid electric vehicles and hydrogen FCEVs attract the same tax as IC vehicles.
- The Ministry of New and Renewable Energy, under its Research, Development and Demonstration (RD&D) programme, has been supporting various such projects in academic institutions, research and development organisations and industry for development. Fourteen RD&D projects on hydrogen and fuel cells are currently under implementation with the support of the Ministry. Between 2016-17 and 2018-19, eight projects were sanctioned and 18 completed.
- The Ministry of Science and Technology has supported two networked centres on hydrogen storage led by IIT Bombay and Nonferrous Materials Technology Development Centre, Hyderabad. These involve 10 institutions, including IITs, and IISc, Bangalore.

Electric Vehicles V. Hydrogen Vehicles

Electric Vehicles	Hydrogen Vehicles
Whereas conventional vehicles burn fuel in an internal combustion engine, battery-powered electric vehicles don't have an engine. Instead, they use energy stored in batteries to power one or more electric motors.	Fuel cell vehicles are also driven by an electric motor, but instead of being powered by a battery, they create the electricity in an onboard fuel cell, usually using oxygen from the air and stored hydrogen.
They are also capable of producing instant torque and smoother acceleration than conventional cars.	The main disadvantages of today's hydrogen fuel cell vehicles are the lack of sufficient infrastructure for hydrogen refueling, and the cost of the catalysts
But they are not environment friendly if the electricity used to charge the electric vehicle comes from a coal power plant.	Pure hydrogen fuel cells emit only heat and water as a byproduct. Such cells are also far more energy efficient than traditional combustion technologies.
Electric vehicles are also limited by the range they can travel on a single battery charge. For short-distance commuting, this isn't a problem, but longer trips require lengthy periods of recharging.	Fuel cell vehicles don't have the same range limitations as battery-powered vehicles because they can simply store more (hydrogen) fuel.

Conclusion

- Hydrogen's proponents point to how clean it is as an energy source as water and heat are the only byproducts and how it can be made from a number of sources, including

methane, coal, water, even garbage. However, lack of refuelling stations, which are costly to build, is usually cited as the biggest obstacle to widespread adoption of FCVs. On the other hand, electric vehicles provide a satisfactory alternative to the problems of internal combustion.

- While battery-powered electric vehicles may have a head start on fuel cell vehicles, both technologies are advancing rapidly. It will be interesting to see where they are five years from now

INDIAN PHARMACOPOEIA

◎ CONTEXT

- The Indian Pharmacopoeia (IP) has been recognised formally by the National Department of Regulation of Medicines and Health Products of the Ministry of Public Health of Islamic Republic of Afghanistan.

◎ ABOUT

- It will also be used based on the requirement as reputable pharmacopoeia in the laboratory of medicines and health products quality.
- With this, a new beginning has been made and Afghanistan has become the first country to recognize IP pursuant to the efforts of Department of Commerce and Ministry of Health and Family Welfare.
- IP is an officially recognized book of standards as per the Drugs and Cosmetics Act, 1940 and Rules 1945 thereunder.

About Indian Pharmacopoeia

- The IP specifies the standards of drugs manufactured and marketed in India in terms of their identity, purity and strength.
- The quality, efficacy and safety of the medicines are important from healthcare perspective. In order to ensure the quality of medicinal products, the legal and scientific standards are provided by Indian Pharmacopoeia Commission (IPC) in the form of Indian Pharmacopoeia (IP).
- As per, the Second Schedule of the Drugs and Cosmetics Act, IP is designated as the official book of standards for drugs imported and/or manufactured for sale, stock or exhibition for sale or distribution in India.
- The IP Commission's mission is to promote public and animal health in India by bringing out authoritative and officially accepted standards for quality of drugs including active pharmaceutical ingredients, excipients and dosage forms, used by health professionals, patients and consumers.

BREAST MILK BANKS

◎ CONTEXT

- Human milk banks are sourcing and supplying donated milk to babies whose mothers cannot breastfeed.

◎ ABOUT

- Breast Milk Banks are established under "National Guidelines on Establishment of Lactation Management Centres in Public Health Facilities" by the Ministry of Health and Family Welfare.
- It is established for the purpose of collecting, screening, processing, storing and distributing donor human milk at Government Medical Colleges or District Hospitals with high delivery load and availability of newborn treatment units.
- It has a collection and storage facility of mother's own milk in District Hospital/Sub-district Hospital with at least 12 beds.

- These are established at all delivery points to provide breastfeeding support, lactation counselling and Kangaroo Mother Care (KMC) support to mothers.
- The first Breast Milk Bank of India was established in 1989 at Mumbai.
- MAA - "Mothers Absolute Affection" is a nationwide programme of the Ministry of Health and Family Welfare to promote breastfeeding.

Importance of Breast Milk

- Breast milk is the optimum source of nutrition for the first six months of life of an infant.
- It prevents infections like diarrhoea and acute respiratory infections in early infancy and thus reduces infant mortality.
- It decreases the risk of mothers developing breast cancer, ovarian cancer, type 2 diabetes, and heart disease.
- Breast Milk Contains Important Antibodies.
- Breast Milk Promotes a Healthy Weight.
- Breastfeeding May Make Children Smarter.
- Breastfeeding May Help You Lose Weight.
- Breastfeeding Helps the Uterus Contract.
- Mothers Who Breastfeed Have a Lower Risk of Depression.
- Breastfeeding May Prevent Menstruation.

JAGA MISSION

◎ CONTEXT

- Odisha was awarded the 2019 World Habitat Award for its 'Jaga Mission'.

◎ ABOUT

- Government of Odisha won the 'World Habitat Award' for its ambitious initiative - Jaga Mission.
 - It is the **first of its kind** project in the country, to give **land titles to slum dwellers**.
 - **Odisha Liveable Habitat Mission "JAGA"** is a society under **Housing & Urban Development Department**.
- **Objective:** Jaga Mission promises to provide slum dwellers "self-respect and freedom from the perpetual fear of eviction".
- **Tag line of the mission:** "Transforming Slums to Liveable Habitats"
- **Partners:** The Housing and Urban Development Department of Odisha, Tata Trusts, and Norman Foster Foundation.
- **Other recognitions:** Recently, this project was also awarded the '**India Geospatial Excellence Award**' for technological innovation in transforming the lives of urban poor.
- **World Habitat:** This award is given by World Habitat, a UK-based organization, in partnership with United Nation (UN)-Habitat, every year, in recognition of innovative, outstanding, and revolutionary ideas, projects, and programmes from across the world.

Jaga Mission

- **Jaga Mission** is the World's largest slum land titling project, benefiting a million urban-poor living in the slums of Odisha. Under the Mission, 52,682 urban poor families living in slums have been granted **land rights certificate**.
- **Slum land titling project:** Jaga Mission is a land titling initiative by the Odisha government that works towards turning slums into liveable habitat with all necessary

civic infrastructure and services at par with the better off areas within the same urban local body (ULB).

- It aims to improve the standards of the infrastructure and services as well as access to livelihood opportunities.
- The mission also aims at leveraging and converging various schemes, programs, and funding opportunities.
- **Implementation:** So far, 1725 slums have been surveyed under the project using drones and GIS technology. Besides, transformation of 255 slums into liveable habitat is also under implementation.
- **Use of technology:** Adoption of state-of-art technology combined with extensive community participation has resulted in dispute and litigation-free implementation in a time bound manner.
- **Stakeholders:** The mission aims to strengthen collaboration among various Departments/ Urban Bodies/ Non-Government Organisations/ Financial Institutions/ International Agencies/ Trusts/ Communities and other Stakeholders.
- **Policy suggestions:** The mission will also provide advisory support to Government of Odisha to examine options for policy reforms required for the sustainable transformation of lives of urban poor.

KORAGA COMMUNITY

◎ CONTEXT

- **Karnataka's Koraga community is the Gold Award Winner of 2019 World Habitat Awards.**

◎ ABOUT

- **Initiative:** 'Restoration of Dignity and Human Rights of Indigenous Tribal Community in Karnataka'.
 - The transformative initiative supporting the **Koraga people and nine other tribal communities** in Karnataka has been named a **Gold Award Winner** for **2019 World Habitat Awards**.
- **Objective:** The initiative helps Indigenous Tribal Community to **access land for the first time**.
 - It has helped secure nearly 49,000 acres of forest land and 1,000 acres of agricultural land for tribal communities. Besides, 19,000 families have obtained grants to build houses
- **Partners:** Koraga Federation, Samagra Grameena Ashrama and ActionAid India.
- **World Habitat:** This award is given by World Habitat, a UK-based organization, in partnership with United Nation (UN)-Habitat, every year, in recognition of innovative, outstanding, and revolutionary ideas, projects, and programmes from across the world.

The Initiative

- **Ending caste based oppression:** The Action Aid initiative aims to break the cycle of caste-based oppression through social and economic empowerment.
- **Access to government schemes:** The main focus of the project is to support indigenous communities in accessing government schemes to which they are entitled.
 - Enhanced access **to state-sponsored nutrition programmes** has improved food security and health among the Koraga community.
 - More children attend school and have **access to scholarships**.

- **Secured lands:** Under the initiative, thousands of acres of land have been secured for tribal communities and have been given access to grants to build homes. This has acted as a foundation for them to rebuild their lives.
- **Empowering women:** More than 1,000 Koraga women have been supported to become self-sufficient. Many Koraga women now hold leadership positions within the community.

Koraga community

- **Geographical presence:** The Koragas are a **tribal community** found mainly in Dakshina Kannada, Udupi districts of Karnataka and Kasaragod district of Kerala, South India. These areas in Karnataka, are together often referred to as Tulu Nadu.
 - They are also found in small numbers in adjoining districts of Uttara Kannada, Shimoga and Kodagu.
 - The Koragas numbered 16,071, according to the 2001 census of India.
- **Way of life:** The area in which Koragas live comprise mostly of **agricultural land and forest**. The tribe continue to **make use of the forest produce**—principally, bamboo and creepers—for the manufacture of baskets.
 - Traditionally, they lived in structures made of leaves, called **koppus** and also **dressed in leaves**.
 - Around at the beginning of 21st century, they started to live in **simple free houses** constructed and sanctioned by Government agencies.
 - However, some of them continue to remain either homeless or live on government-owned lands.
- **Practice of drum beating:** Koraga people are known for drum beating (**dollu or dolu beating**) and it is one of their important cultural contributions. They used to beat dolu during events such as Kambala, village fairs or just for fun in their living places.
 - Traditional belief was that Koraga drum-beating had special powers and that the sound of drum-beating drives away evil spirits.
 - However, the practice declined as the **drum beaters** were looked down upon by society.
 - **Flute music and dance** involving both men and women are also important parts of Koraga culture and are apparent at celebrations such as Bhoomi Habba (worshipping earth).
- **Language:** Koragas have their **own language**, classified as an independent Dravidian language, which is strongly influenced by Tulu, Kannada, Malayalam, languages commonly found in their area.
 - **Social Status:** The 1901 census report noted the Koraga as a lowly tribe of **basket-makers and labourers**, some of whom were employed as scavengers. The Koraga tribal community suffered **centuries of oppression** under India's historic caste system.
 - In past they **were claimed to be of Chandala origin**, considered **untouchables** among Hindus.
 - Presently, Koragas are classified by the Government of India as a **Scheduled Tribe**.
 - The Koraga people are an **educationally disadvantaged** tribe. The first PhD to be awarded to a member of the community was reported in 2010.
- **Practice of Ajalu:** The Koraga people have been subjected to a practice known as Ajalu, which the Government of Karnataka defined as "differentiating Koraga people and persons belonging to other communities, **treating them as inferior human beings, mixing hair, nails and other inedible obnoxious substances in the food** and asking them to eat that food and to **make them to run** like buffaloes before the beginning of Kambala."

- Ajalu has been considered inhuman and was prohibited in 2000 by the **Karnataka Koragas (Prohibition of Ajalu Practice) Act, 2000**.
- Contravention of the Act is **punishable** by a term of imprisonment of between six months and five years, as well as a cash penalty.
- Nonetheless, Ajalu has been **occasionally witnessed** during Nemotsava or temple fairs at places such as Inna (Karkala) and Saligrama, Udupi, leading to Koraga people demanding action against the culprits and the police who failed to prevent it.
- **Note: Kambala is an annual buffalo race held in Karnataka.**

3-D BIO-PRINTING

◎ CONTEXT

- Bangalore based start-up Next Big Innovation Lab has made human skin with its own 3D bio-printer using 3D bio-printing with a secret bio-ink. The development of 3D bio-printers has raised the prospects of making tissues and organs in a more affordable way and consistent way.

◎ ABOUT

- Bio-printing is an additive manufacturing process where biomaterials such as cells and growth factors are combined to create tissue-like structures that imitate natural tissues.
 - A material known as **bio-ink** is used to create these structures in a layer-by-layer manner.
- **Bio-ink:** Bio-ink is a combination of living cells and a compatible base, like **collagen, gelatine, hyaluronan, silk, alginate or nanocellulose**. A compatible base provides cells with scaffolding to grow on and nutriment to survive on. The complete substance is based on the patient and is function-specific.
- **Next Big Innovation Lab (NBIL) case:** The NBIL has made human skin with its own 3D bio-printer using 3D bio-printing with a secret bio-ink. It has filed for patents related to its 3D bio-printing process and its bio-ink formulation is a trade secret. Using its internally developed 3D bio-printer gives NBIL a cost advantage.
- **History of bio-printing:** Creation of human skin in a lab for commercial use dates back to 1993 when MatTek, a company founded by two chemical engineering professors at MIT, launched **EpiDerm**.
 - They took live tissue cells from cosmetic surgeries and circumcisions, and then cultured them in petri dishes to produce skin.
 - EpiDerm is a proven in vitro model system for chemical, pharmaceutical and skin care product testing.

The process of bio-printing

- **Similar to conventional 3D printing:** Here a digital model becomes a physical 3D object layer-by-layer. However, a living cell suspension is utilized instead of a thermoplastic or a resin.
- **Caution:** In order to optimize cell viability and achieve a printing resolution adequate for a correct cell-matrix structure, it's necessary to **maintain sterile printing conditions**. This ensures accuracy in complex tissues, requisite cell-to-cell distances, and correct output.
- **Key steps in bio-printing:** Several bio-printing methods exist, based on extrusion, inkjet, acoustic, or laser technologies. But the process principally involves **preparation, printing, maturation, and application** which can essentially be summarized into **three key steps**:
 - **Pre bio-printing** involves creating the digital model that the printer will produce. The technologies used are computed tomography (CT) and magnetic resonance imaging (MRI) scans. The 3D imaging should provide a perfect fit of the tissue. Further, 3D modelling is done where the blueprint includes a layer-by-layer instruction in high detail.

- **Bio-printing** is the actual printing process, where bio-ink is placed in a printer cartridge and deposition takes place based on the digital model. This process involves depositing the bio-ink layer-by-layer, where each layer has a thickness of 0.5 mm or less.
- **Post bio-printing** is the mechanical and chemical stimulation of printed parts so as to create stable structures for the biological material. As deposition takes place, the layer starts as a viscous liquid and solidifies to hold its shape. This happens as more layers are continuously deposited. The process of blending and solidification is known as crosslinking and may be aided by UV light, specific chemicals, or heat (also typically delivered via a UV light source).

Application

- **Medicine and Bio-engineering:** The technique is widely applicable in fields of medicine and bioengineering. Recently, the technology has even made advancements in the production of cartilage tissue for use in reconstruction and regeneration.
 - The process can eradicate the need of organ donation and transplantation.
 - While **organ replacement** is the main objective, but **tissue repair** is also possible in the meantime.
 - With bio-ink, it's much easier to **solve problems on a patient-specific level**, promoting simpler operations.
 - Bone tissue regeneration as well as prosthetics and dental applications.
- **Pharmaceutical testing and reduced need for animal trials:** The bio-printed tissue-like structures mimic the actual micro- and macro-environment of human tissues and organs. This is critical in drug testing and clinical trials, with potential, for example, to drastically reduce the need for animal trials.
 - Treatment for diseases can be tested using artificially affected tissues.
 - This is a more cost-effective and ethical option.
- **Cosmetic surgery:** Cosmetic surgery, particularly plastic surgery and skin grafting, also benefits from this technology. Victims of burns and other wounds could get relief from its commercial availability, once it is developed further to be good enough for grafting.

Concerns

- **Hype:** Many new developments are over-hyped as the ultimate and ready-to-use breakthroughs in the field of 3D bio-printing, when in fact there are many unsolved problems in tissue engineering before complex organs like the heart, kidney and liver can be bio-printed.
- **Vasculature:** The vasculature—network of blood vessels that feeds the organ—is still a challenge. The vasculature still has to be developed to allow lab skin to integrate with the human body's blood vessels.
 - Stem cell engineering to grow all the cells of an organ in a personalised way to avoid rejection by the recipient's immune system is another challenge.
 - Researchers still have to ensure that a lab organ will work with all the other organs in a human body.
- **Regulatory concerns:** The future of 3D bio-printed tissues and organs depend on regulatory clearances and getting the technology right.
- **Moral and ethical concern:** The entire process is also criticized from a moral and ethical perspective.
