

CAR T - Cell Therapy

❖ **Context**

➤ A new development on cancer-treatment front, currently holding the attention of many researchers worldwide, is **CAR T-cell therapy**.

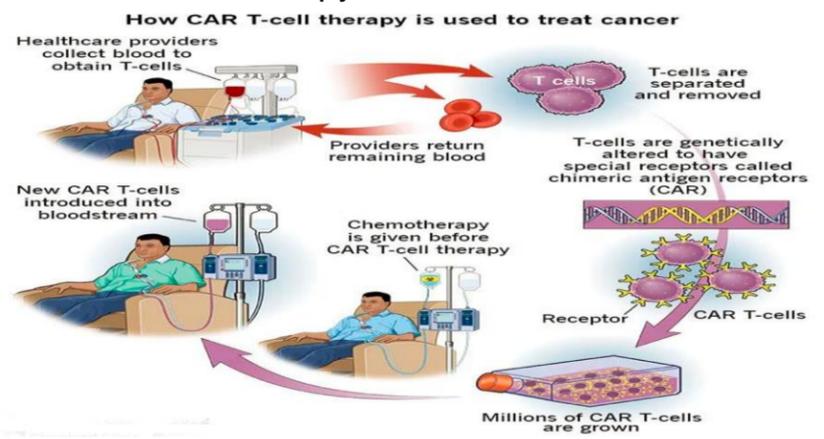
❖ **Key Highlights:**

- The **three major forms of treatment** for any cancer are :
 - Surgery (removing the cancer).
 - Radiotherapy (delivering ionising radiation to the tumour).
 - Systemic therapy (administering medicines that act on the tumour).
- Systemic therapy's earliest form was **chemotherapy**.
 - When administered, it preferentially acts on cancer cells because of the latter's rapid, unregulated growth and poor healing mechanisms. (More side effects).
- **The next stage in its evolution was targeted agents, a.k.a. immunotherapy.**
 - The drugs bind to specific targets on the cancer or in the immune cells that help the tumour grow or spread. (Fewer side-effects).

❖ **CAR T-cells:**

- **Chimeric antigen receptor (CAR) T-cell** therapies represent a quantum leap in the sophistication of cancer treatment.
- Unlike chemotherapy or immunotherapy, which require mass-produced injectable or oral medication, **CAR T-cell therapies use a patient's own cells.**
- They are modified in the laboratory to **activate T-cells**, a component of immune cells, to attack tumours.
- These modified cells are then **infused back into the patient's bloodstream** after conditioning them to multiply more effectively.
- The cells are even more specific than targeted agents and directly activate the patient's immune system against cancer, making the treatment more clinically effective.

- This is why they're called '**living drugs**'.
- **Working of CAR T-Cell Therapy.**
- **Application of CAR T-Cell Therapy :**
 - CAR T-cell therapy has been **approved for leukaemias and lymphomas.**
 - **Leukaemias** : Cancers arising from the cells that produce white blood cells.
 - **Lymphomas** : Cancers arising from the lymphatic system.
 - These cancers occur through unregulated reproduction of a single clone of cells : following the cancerous transformation of a single type of cell, it produces millions of identical copies.
 - It is being used among patients with cancers that have returned after an initial successful treatment or which haven't responded to previous combinations of chemotherapy or immunotherapy.



What Role India has Played to Help Natural Disaster-Hit Countries In the Past?

❖ **Context**

➤ **In a bid to provide relief** to the quake-hit Turkey, India is sending an Army medical team, National Disaster Relief Force (NDRF) personnel, and medical supplies.

❖ **Key Highlights:**

- According to the Indian Army, the **mobilisation of the field unit** took place just hours after the announcement of the disaster relief response to Turkey.
- Sending aid to Turkey is yet another instance of India quickly coming in support of a country hit by a natural disaster.
- **In the last 15 years**, India has carried out several disaster relief operations and emerged as a leading actor during such emergencies, especially in its neighbourhood.

❖ **What Are The Previous Instances Of India Sending Aid To Natural Disaster-Hit Countries?**

- **The United States of America** : An Indian Air Force IL-76 aircraft delivered 25 tonnes of relief supplies for the Hurricane Katrina victims at the Little Rock Air Force Base, Arkansas on September 13, 2005.
 - The relief supplies comprised 3,000 blankets, bed sheets, tarpaulins and personal hygiene items.

- **Maldives**: After the 2004 Tsunami, the Indian government announced a composite package worth five crore rupees.
 - Under "**Operation Castor**", 50 sorties were undertaken and four aircraft and two naval ships were engaged in relief operations.
 - Repairing and restoring generators & communication, providing drinking water, & setting up medical camps on ships were also done.
- **Sri Lanka**: India sent its forces to carry out rescue operations, called "**Operation Rainbow**", in Sri Lanka hours after the Tsunami struck the country on **December 26, 2004.**
 - **Not only this**, India provided medical assistance to thousands of victims by setting up medical camps in coordination with the local civil and military health authorities. Preventative medication and vaccines were also supplied.

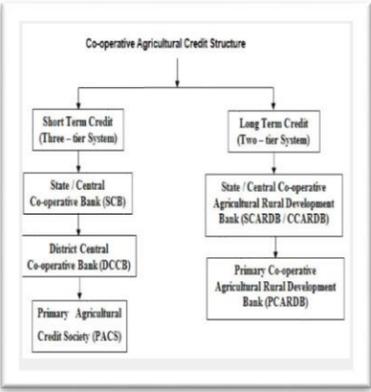
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- **Myanmar:** When cyclone Nargis hit Myanmar in 2008 killing at least 20,000 people, India was among the first countries to send aid to them.
 - It gave 125.5 tonnes of relief material, including medicines, clothing, utensils, water tanks, tents and tarpaulin.
- **Japan:** The 2011 Tsunami wreaked havoc in Japan. Apart from providing relief materials, India also sent 46 members of the National Disaster Response Force (NDRF) to search and rescue in the town of Onagawa.
 - It was their first overseas operation. The team included a doctor, three officers, six inspectors, two paramedics and constables and carried 9,000 kg of equipment and food.
- **Nepal:** In the aftermath of the 2015 Nepal earthquakes, the NDRF deployed 16 of its urban search and rescue (USAR) teams, which comprised more than 700 rescuers in the country.
 - They rescued 11 injured persons and retrieved 133 dead bodies from the rubble. The teams also organised six medical camps and attended to 1,219 persons. Indian authorities sent more than 1,176 tonnes of relief materials to Nepal.

News in Between the Lines

Primary Agricultural Credit Societies (PACS)



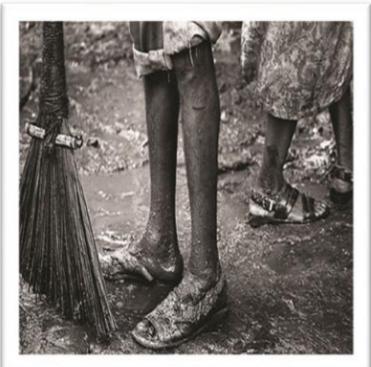
❖ Context

- The Union Budget has announced Rs 2,516 crore for computerisation of 63,000 Primary Agricultural Credit Societies (PACS) over the next five years.

❖ What are PACS?

- PACS are village level cooperative credit societies that serve as the last link in a three-tier cooperative credit structure headed by the State Cooperative Banks (SCB) at the state level.
- Credit from the SCBs is transferred to the district central cooperative banks, or DCCBs, that operate at the district level. The DCCBs work with PACS, which deal directly with farmers.
- Since these are cooperative bodies, individual farmers are members of the PACS, and office-bearers are elected from within them. A village can have multiple PACS.
- PACS are involved in short term lending or what is known as crop loan. At the start of the cropping cycle, farmers avail credit to finance their requirement of seeds, fertilisers etc.
- Banks extend this credit at 7 percent interest, of which 3 per cent is subsidised by the Centre, and 2 per cent by the state government. Effectively, farmers avail the crop loans at 2 percent interest only.

National Action for Mechanized Sanitation Ecosystem (NAMASTE)



❖ Context

- Ministry of Social Justice & Empowerment (MoSJE) has formulated a scheme "National Action for Mechanized Sanitation Ecosystem" (NAMASTE).

❖ About NAMASTE

- Main features of the Scheme to be implemented in all ULBs are:-
 - **Identification:** NAMASTE envisages identifying the Sewer/Septic Tank Workers (SSWs).
 - **Occupational Training and distribution of PPE Kits to SSWs.**
 - **Assistance for Safety Devices to Sanitation Response Units (SRUs).**
 - **Extending Health Insurance Scheme Benefits** to identified SSWs and their families under the Ayushman Bharat- Pradhan Mantri Jan Arogya Yojana (AB-PMJAY).
 - **Livelihood Assistance:** The Action Plan will promote mechanization and enterprise development by providing funding support and subsidy (capital +interest) to the sanitation workers, to procure sanitation related equipments.
 - **IEC Campaign:** Massive campaigns would be undertaken jointly by the ULBs & NSKFDC to spread awareness about the interventions of NAMASTE.
- It is a joint venture of :
 - Department of Drinking Water and Sanitation, Ministry of Drinking Water and Sanitation Ministry of Social Justice and Empowerment and Ministry of Housing and Urban Affairs.
- Significance :
 - This scheme particularly to stop deaths of Sewers & Septic Tank Workers (SSWs).
 - It will promote mechanisation of cleaning operations with a vision to reduce hazardous cleaning and ensure safety of sanitation workers.

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Repo Rate



❖ Context

- Recently, RBI's monetary policy committee (MPC) raised the repo rate by 25 basis points (bps) to 6.5%, the highest since 2018, as it attempts to cool inflation closer to its target.
- The committee kept the policy stance of "withdrawal of accommodation" unchanged.

❖ About Repo Rate:

- Repo rate is the rate of interest at which commercial banks borrow money from the central bank i.e. Reserve bank of India (RBI).
- In the case of inflation, RBI increases the repo rate, & in the case of deflation decreases it.
- RBI increases the repo rate to remove the excess supply of the money out of the market.
- Reverse repo rate**
 - Reverse repo rate is the rate of interest at which commercial banks keep their deposit with the central bank.
- Impacts**
 - Both borrowers and depositors are expected to see a hike in lending rates and offering on deposit rates, respectively.
 - Borrowers are likely to be impacted earlier.
 - Equated monthly installments (EMIs) on home, vehicle and other personal and corporate loans are likely to go up.
 - Repo rate hikes are expected to impact consumption and demand in the economy.

Mission Antyodaya Survey (MAS)



❖ Context

- The Union Minister for Rural Development and Panchayati Raj will inaugurate the Mission Antyodaya Survey (MAS) 2022-23 on 9 Feb 2023.

❖ Key Highlights:

- The Department of Rural Development has been conducting Mission Antyodaya Survey across all Gram Panchayats in the country since 2017-18.
- Its purpose is to transform lives and livelihoods of people on measurable outcomes through convergence of various schemes.
- Annual survey in Gram Panchayats across the country is an important aspect of Mission Antyodaya framework.
- The survey aims to lend support to the process of participatory planning for Gram Panchayat Development Plan (GPDP).
 - It will improve service delivery, enhance citizenship, create pace for an alliance of people's institutions, and groups and improve governance at the local level.
- The survey is being conducted to collect village level data on 183 indicators under 216 data points of 21 sectors.
- The survey questions have been categorized into five stratum: (i) Panchayat Infrastructure; (ii) Panchayat Services; (iii) Village Infrastructure; (iv) Village Services; and (v) Village Practices.

Quasicrystals



❖ Context

- Scientists have discovered a third natural source of quasicrystals, extending the latter's reputation for violent origins.

❖ What are Quasicrystals?

- Quasicrystals** are a type of solid material that has a highly ordered atomic structure, but unlike crystals, the arrangement of atoms does not repeat in a regular pattern.
- This results in unique optical and physical properties such as unusual thermal stability and resistance to aging.
- For example**, atoms arranged in repeating cubes have fourfold symmetry and atoms arranged as equilateral triangles have threefold symmetries.
- But quasicrystals behave differently than other crystals.** They have an orderly pattern that includes pentagons, fivefold shape, but unlike other crystals, the pattern never repeats itself exactly.
- Quasicrystals were first discovered in the 1980s and have since been found in a range of materials including metals, ceramics, and polymers.

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Pradhan Mantri Matru Vandana Yojana (PMMVY)



❖ Context

- Recently, Under Pradhan Mantri Matru Vandana Yojana (PMMVY), **cash incentives of ₹5,000/- is provided** directly to the Bank/Post Office account of the beneficiary in **Direct Benefit Transfer (DBT)** mode for first child.

❖ Key Highlights:

- The Budget Estimates (BE) for the financial year 2023-24 for Mission Shakti including PMMVY component, is ₹3143.96 crore.

❖ About PMMVY:

- It was **Launched in 2017**.
- PMMVY is a **Centrally Sponsored DBT** scheme.
- It is being **implemented in all the districts** of the country in accordance with the provision of the **National Food Security Act, 2013**.
- It Provides the **cash incentive of ₹ 5000/-** (in three installments) being provided directly in the bank/post office account of Pregnant Women and Lactating Mothers.
 - Provides this cash for the birth of the first child to **partially compensate a woman for loss of wages**.
 - It also aims to **improve the nutritional well-being** of the mother and the child.
 - Regular employment with the Central Government or the State Governments or PSUs or those who are in receipt of similar benefits are excluded.
- It is combined with another scheme, **Janani Suraksha Yojana**, under which nearly ₹1,000 is given for an institutional birth, so that a woman **gets a total of ₹6,000**.

Wetland ex-situ Conservation Establishment (WESCE)

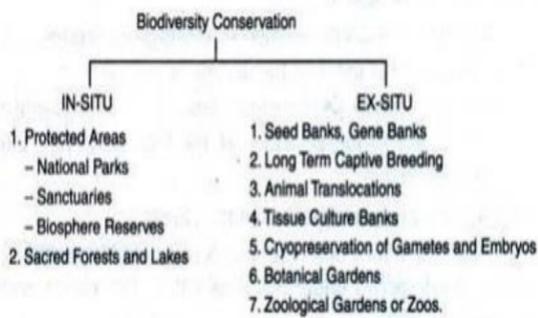


❖ Context

- Rajasthan plans zoo for dolphins, rhinos inside Bharatpur sanctuary.

❖ Key Highlights:

- **The Rajasthan state Forest Department** has proposed to construct a zoo inside Keoladeo National Park, a **World Heritage Site** popularly known as Bharatpur bird sanctuary, to display a range of wetland species, including rhinos, water buffaloes, crocs, dolphins and exotic species.



- The purpose of this zoo, called **Wetland ex-situ Conservation Establishment (WESCE)**, is to rejuvenate the bio-diversity of Keoladeo National Park, thereby boosting its outstanding universal values.

- **According to the plan**, several facilities are planned inside Keoladeo national park. Including a breeding & re-introduction centre for locally extinct species, **such as otters, fishing cats, blackbucks, hog deer**, etc.

- Additionally an aquarium for indigenous species like **Gangetic Dolphin, crocodiles**; enclosures for the display of large wetland species like **Indian Rhino, Water Buffalo, Barasingha (swamp deer)**; an aviary, a reptile house and a veterinary care facility will also be established.

Operation “Narcos” and Operation AAHT



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❖ Context

- Railway Protection Force (RPF) conducted a month long nationwide Drive under **Operation “Narcos”** and **Operation AAHT** during January 2023.

❖ Key Highlights:

- **Under Operation AAHT**, special teams are deployed on all long-distance trains/routes with a focus on rescuing victims, particularly women and children, from the clutches of traffickers.
- **Additionally**, the infrastructure and intelligence network of the force are used to collect, collate, and analyse clues on victims, source, route, destination, popular trains used by suspects, the identity of carriers/agents, kingpins, etc., **which could then be shared with other law enforcement agencies**.
- **Operation “NARCOS”**- In order to bring attention to the menace of **Narcotic Drugs and Psychotropic Substances**, a pan India drive against smuggling of narcotics through rail, was launched under this code name.

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