



22 August 2024

National and International News

<p><b>Ethanol Blending Program</b></p>	<p><b>Why in the news?</b></p> <ul style="list-style-type: none"> <li>India is advancing towards its target of achieving 20% ethanol blending with petrol by 2025-26.</li> </ul> <p><b>About Ethanol Blending Program:</b></p> <ul style="list-style-type: none"> <li><b>Ethanol:</b> A biofuel produced through fermentation of sugars or via petrochemical processes (e.g., ethylene hydration).</li> <li><b>Ethanol Blending:</b> Mixing ethanol derived from agricultural products with petrol to create a blended motor fuel.</li> <li><b>Benefits:</b> Ethanol is rich in oxygen content, leading to more efficient fuel combustion in engines.</li> <li><b>Production of Ethanol in India:</b> <ul style="list-style-type: none"> <li><b>Promoting Agency:</b> The Department of Food and Public Distribution (DFPD) is the primary agency promoting fuel-grade ethanol distilleries.</li> <li><b>Raw Materials:</b> Ethanol is produced from sugarcane-based materials (C &amp; B heavy molasses, sugarcane juice, sugar syrup), surplus rice from the Food Corporation of India (FCI), and maize.</li> </ul> </li> <li><b>India's Biofuel Policy: Policy Amendment:</b> The Central government amended the Biofuel Policy in 2021-22, targeting 20% ethanol and 5% biodiesel blending by 2025.</li> <li><b>Major Contributors:</b> Uttar Pradesh is a significant contributor, with distilleries producing both sugarcane and grain-based ethanol.</li> </ul>
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<p><b>Hayflick limit</b></p>	<p><b>Why in the news?</b></p> <ul style="list-style-type: none"> <li>• <b>Leonard Hayflick</b>, the <b>biomedical researcher</b> who discovered that <b>normal somatic cells can only divide a certain number of times</b>, recently passed away.</li> </ul> <p><b>About Hayflick limit:</b></p> <ul style="list-style-type: none"> <li>• Refers to the <b>maximum number of times a cell can divide</b>.</li> <li>• <b>Named after scientist Leonard Hayflick</b>, who discovered this phenomenon.</li> <li>• Plays a <b>crucial role in aging</b> and the <b>development of age-related diseases</b>.</li> <li>• <b>Cell Division Phases:</b> <ul style="list-style-type: none"> <li>○ <b>Phase 1:</b> Rapid, healthy cell division.</li> <li>○ <b>Phase 2:</b> Mitosis slows down.</li> <li>○ <b>Phase 3:</b> Senescence, where cells stop dividing entirely but remain alive for a time.</li> </ul> </li> <li>• <b>Apoptosis:</b> After cells stop dividing, they undergo a programmed cellular death called apoptosis.</li> <li>• <b>Telomeres:</b> <ul style="list-style-type: none"> <li>○ Telomeres are <b>repetitive DNA sequences at the end of chromosomes</b>, protecting them during cell division.</li> <li>○ <b>With each cell division, telomeres shorten</b>, eventually reaching a <b>critical point where cell division ends</b>.</li> </ul> </li> </ul>
<p><b>Discovery of Liquid Water on Mars</b></p>	<p><b>Why in the news?</b></p> <ul style="list-style-type: none"> <li>• A recent study has made a <b>significant breakthrough by discovering vast amounts of liquid water hidden deep within Mars' rocky outer crust</b>, enhancing our understanding of the Red Planet.</li> </ul> <p><b>Key points:</b></p> <ul style="list-style-type: none"> <li>• <b>First Discovery:</b> Scientists have found <b>evidence of liquid water on the Martian surface</b>, beyond the previously known presence of water ice at the planet's poles.</li> <li>• <b>Study Title:</b> "Liquid water in the Martian mid-crust."</li> <li>• <b>Publication:</b> The study was published in the prestigious journal Proceedings of the <b>National Academy of Sciences (PNAS)</b>.</li> </ul>



# Daily Current Affairs Encyclopedia

	<ul style="list-style-type: none"> <li>● <b>Research Team:</b> The research was conducted by scientists from the <b>University of California</b>.</li> </ul>
<p><b>Telecommunications Act, 2023</b></p>	<p><b>Why in the news?</b></p> <ul style="list-style-type: none"> <li>● The new <b>Telecommunication Act</b> has sparked debate over the definition of "telecommunication services."</li> <li>● Telecom operators and social media companies are in disagreement over whether over-the-top (OTT) platforms like <b>WhatsApp</b> and <b>Google Meet</b> should be included in this definition.</li> </ul> <p><b>About Telecommunications Act, 2023:</b></p> <ul style="list-style-type: none"> <li>● The <b>Act defines telecom services</b> as the "transmission, emission, or reception of any messages by wire, radio, optical, or other electromagnetic systems."</li> <li>● It <b>broadly defines messages to include</b> "any sign, signal, writing, text, image, sound, video, data stream, intelligence, or information."</li> <li>● <b>Objective:</b> <ul style="list-style-type: none"> <li>○ <b>Modernize and unify laws</b> for the development, expansion, and operation of telecommunication services and networks.</li> <li>○ Address spectrum assignment and related matters.</li> </ul> </li> <li>● <b>Replacement of Old Laws: Supersedes the Indian Telegraph Act, 1885, and the Indian Wireless Telegraph Act, 1933</b>, due to advancements in telecom technology.</li> <li>● <b>Digital Implementation:</b> Promotes digital frameworks, including online dispute resolution.</li> <li>● <b>Guiding Principles:</b> <ul style="list-style-type: none"> <li>○ Inclusion (Samavesh)</li> <li>○ Security (Suraksha)</li> <li>○ Growth (Vridhhi)</li> <li>○ Responsiveness (Tvarit)</li> </ul> </li> </ul>



Vaccine-Derived Polio

Why in the news?

- A **vaccine-derived polio case** has been confirmed in a **two-year-old child** from Tikrikilla, **Meghalaya**.
- Health authorities clarified that this is **not caused by the wild poliovirus but is related to an infection occurring in individuals with low immunity**.

About Vaccine-Derived Polio:

- **India's Polio-Free Status:**
  - **Declaration:** India was declared polio-free by the World Health Organization (WHO) in **2014**.
  - **Last Wild Poliovirus Case:** The last case of wild poliovirus in India was reported in **2011**.
- **Understanding Vaccine-Derived Polio (VDPV):**
  - **Vaccine Composition:** The **Oral Polio Vaccine (OPV)** contains a weakened form of the poliovirus to stimulate an immune response.
  - **cVDPV Development:** In rare cases, in **under-immunized populations, the excreted vaccine virus can circulate**, undergo genetic changes, and potentially revert to a form capable of **causing paralysis**. This is known as **circulating vaccine-derived poliovirus (cVDPV)**.
  - **Prevention:** WHO recommends multiple rounds of high-quality immunization campaigns to stop cVDPV transmission.

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