



12 January, 2024

India UAE Business Summit

Context: The India-UAE Business Summit took place during the Vibrant Gujarat Global Summit 2024, aiming to enhance and fortify the bilateral relations between the two countries.

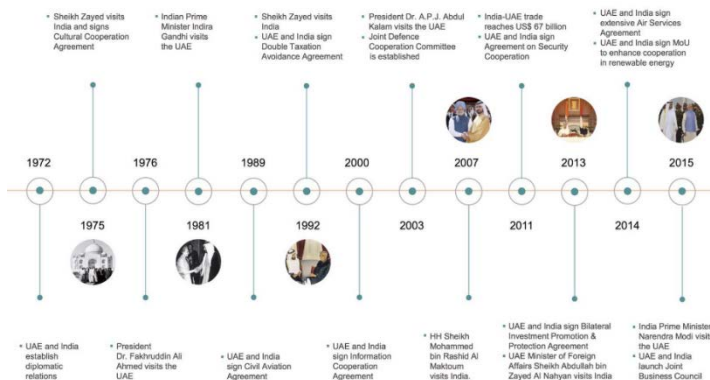
➤ Inaugural Session Highlights:

- Keynote addresses from Shri Piyush Goyal, Union Minister of Commerce and Industry (India), and H.E. Dr. Thani bin Ahmed Al Zeyoudi, Minister of State for Foreign Trade (UAE).
- Launch of UAE-India CEPA Council (UICC) website by Shri Piyush Goyal, H.E. Dr. Thani bin Ahmed Al Zeyoudi, and Shri Bhupendra Rajnikant Patel, Chief Minister of Gujarat.

➤ Start-Up Initiative:

- Launch of the report on CII India-UAE Start-Up Initiative titled "Unlocking Opportunities: India-UAE Start-Up Ecosystem Convergence."
- Remarks from Shri Kunal Bahl, Chairman of CII National Startup Council, and Co-founder of Snapdeal and Titan Capital.

UAE-INDIA RELATIONS TIMELINE



➤ Trade and Economic Cooperation:

- Bilateral trade increased by 15% since the entry into force of India-UAE CEPA (Comprehensive Economic Partnership Agreement) on May 1, 2022.
- India's third-largest trading partner for the year 2022-23 and second-largest export destination.
- CEPA aimed at reducing tariffs, eliminating trade barriers, and fostering investment and joint ventures.

➤ Financial Collaboration:

- Memorandum of Understanding signed in July 2023 to establish a framework promoting the use of local currencies (INR-AED) for cross-border transactions.
- Developing the Local Currency Settlement System between the two countries to settle bilateral trade.

➤ Specific Initiatives and Projects:

- Discussion session on trade finance, investment facilitation, and sectoral collaboration.
- Presentation on Bharat Mart, a proposed warehousing facility in the UAE to support Indian exporters.
- Interest expressed by DP World CEO and Lulu Group International Chairman in increasing investment in the Indian food processing industry.

➤ Trade Figures and Targets:

- Bilateral trade reached USD 85 billion in 2022, with a target of reaching USD 100 billion non-oil trade by 2030.
- CEPA contributed to a growth of 5.8% in bilateral non-oil trade in the first 12 months since its implementation.

➤ Mutual Growth and Prosperity:

- The UAE-India Business Summit is seen as a significant step toward accelerating bilateral economic relations for mutual growth and prosperity.

Brain States and Brain Waves

Context: The terms found mention in the Hindu Newspaper.

➤ The quest to alter mental states, such as inducing a "theta" state for relaxation, inward focus, and sleep, is facilitated by various apps and technologies.

➤ The concept of changing one's "mental state" is under scrutiny, and the effectiveness of such endeavors is currently inconclusive.

➤ Evolution of Brain-Measuring Tech:

- Comprehensive insights into brain activity require various measurement approaches.
- Magnetic resonance imaging (MRI) and its functional counterpart have significantly contributed to unraveling brain activity.
- Additional methods encompass electroencephalography (EEG) and measuring the brain's response to magnetic stimulation.

➤ Brain States and Neural Activity:

- Neural activity, involving intricate sequences of electrical impulses and neurotransmitters, forms the bedrock of human behaviors and cognition.
- Measurements occur at different levels – single-cell, network, or whole-brain activity patterns linked to specific "brain states."
- Common states studied include arousal, resting, and task-induced brain states.

➤ Types of Brain States:

- Arousal and resting states represent various levels of alertness and are subject to influence from environmental factors and activities.
- Task-induced brain states, such as attentional states, are driven by cognitive demands and exhibit increased connectivity.

➤ Challenges in Brain State Analysis:

- Disentangling multiple coexisting brain states poses challenges due to trade-offs in spatial versus temporal brain activity recording.

➤ Brain Wave Patterns:

- Brain states often manifest through distinctive brain wave patterns, such as alpha, beta, theta, measured through EEG.
- Each wave pattern is associated with specific mental states, like deep relaxation or deep sleep.

➤ Controlling Brain States:

- Investigative efforts into intentional influence on brain states encompass a spectrum, ranging from drug interventions to environmental cues, mindfulness, meditation, and sensory manipulation.
- Neurofeedback therapy, a method attempting to influence brain states, provides feedback based on brain wave

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activity, while another approach focuses on up-regulating brain regions associated with positive emotions using MRI-generated data.

➤ Challenges and Controversies:

- The effectiveness of neurofeedback therapy remains contentious, with inconclusive clinical studies.
- Techniques like binaural beats, claiming to change brain states, present mixed evidence.
- Treatments like neurofeedback can be financially burdensome, and their success may be contingent on the therapeutic relationship.

While there's no evidence of harm in these treatments, their efficacy remains uncertain, potentially causing delays in implementing proven beneficial therapies. The exploration of brain states and their manipulation continues to be a dynamic and evolving field with ongoing research and advancements.

Green Hydrogen: Enabling Measures Roadmap for Adoption in India

Context: The World Economic Forum and Bain & Company's report on green hydrogen emphasizes the need to reduce production costs to less than \$2 per kilogram.

➤ Cost-Parity with Grey Hydrogen:

- **Objective:** Achieve cost-parity to produce 5 million tonnes of green hydrogen annually by 2030.
- **Current Production Costs:** Approximately \$4-5 per kilogram, double that of grey hydrogen.
- **Expenditure Breakdown:** 50-70% for round-the-clock (RTC) renewable electricity and 30-50% for electrolyser costs.

➤ Electrolyser Cost Reduction:

- **Recommendation:** Rapidly reduce electrolyser costs by increasing subsidies significantly.
- **Current Subsidy:** \$54/kW under the National Green Hydrogen Mission.
- **Proposed Action:** Increase the direct subsidy beyond the current \$0.50/kg, which is deemed insufficient for early adopters.

➤ National Green Hydrogen Mission (2022):

- **Aim:** Decarbonize hard-to-abate sectors, reduce dependence on imports, and abate 50 million tonnes of greenhouse gas emissions cumulatively.
- **Methodology:** Green hydrogen production through water electrolysis using electricity from renewable sources.

➤ Challenges and Limited Traction:

- **Current Industry Status:** Limited on-the-ground traction, with many players adopting a 'wait-and-watch' approach.
- **Anticipated Production:** Significant green hydrogen production expected around 2027 and beyond.

➤ Infrastructure Development and Capacity Planning:

- **Electrolyser Capacity Plans:** Reported plans for 8 GW of electrolyser capacity, below the baseline requirement of 35-40 GW by 2030.
- **Recommendation:** Develop and test indigenous electrolyser technology to meet capacity targets.

➤ International Trade Opportunities:

- **Unregulated Market:** Green hydrogen derivatives (methanol, ammonia) present an opportunity for international trade.
- **Advantage for India:** Establish as an export hub by capitalizing on low-cost renewable energy and skilled workforce.

➤ Storage and Transport Mitigation:

- **Strategy:** Develop green hydrogen production clusters for collaborative production and nearby offtake.
- **Infrastructure Investment:** Create a pipeline network for efficient transport throughout the country.

➤ Standards and Emission Monitoring:

- **Recent Initiatives:** India launched standards allowing less than 2kg CO2 emissions per kg of hydrogen produced over a 12-month average.
- **Recommendation:** Define precise standards, emission thresholds, and monitoring methodologies for accurate categorization of "green steel" and "green cement."

➤ Net Zero Emissions Goal:

- **National Objective:** Achieve Net Zero emissions by 2070.
- **Critical Steps:** Establishing clear definitions, setting emission thresholds, and developing robust monitoring methods for carbon emissions.

➤ India's Green Hydrogen Transition: Key Goals and Strategies

- **Goal 1: Reduce Green Hydrogen Production Cost**
 - **Target:** Achieve a cost of \$2/kg, making it competitive with grey hydrogen.
 - **Strategy:** Increase renewable energy capacity, leverage incentives for early adopters, and invest in indigenous electrolyser technology.
- **Goal 2: Minimize Infrastructure-Related Costs**
 - **Target:** Reduce or eliminate costs associated with conversion, storage, and transport.
 - **Strategy:** Develop green hydrogen production clusters, invest in long-term infrastructure like pipelines, and promote collaborative off-take environments.
- **Goal 3: Support Industries in Adopting Green Hydrogen**
 - **Target:** Encourage industries, especially existing grey hydrogen users, to shift to green hydrogen.
 - **Strategy:** Increase direct subsidies, provide policy clarity, offer financial support for R&D, and establish standards for green hydrogen use.
- **Goal 4: Capitalize on Export Potential for Green Hydrogen Derivatives**
 - **Target:** Leverage India's export potential to become a green hydrogen derivative hub.
 - **Strategy:** Develop globally recognized standards, improve export infrastructure at ports, and establish bilateral agreements with potential importers.
- **Goal 5: Disincentivize Carbon-Intensive Alternatives**
 - **Target:** Divert subsidies from carbon-intensive sources to fund green hydrogen projects.
 - **Strategy:** Implement a comprehensive carbon-tax regime, redirect fossil-fuel subsidies, and ensure affordability for domestic energy needs.

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NEWS IN BETWEEN THE LINES

Yuva Nidhi Scheme



Today, the Karnataka government is going to launch the Yuva Nidhi scheme.

About Yuva Nidhi Scheme:

- The Yuva Nidhi, **the fifth and final guarantee scheme** of the Karnataka government, is set to be officially launched in Shivamogga town of Karnataka.
- This scheme **aims to provide a two-year unemployment allowance** to eligible candidates who passed their degree/diploma in 2022-2023.
- Unemployed graduates will receive **₹3,000 per month**, while diploma holders will get **₹1,500 per month**.
- Candidates under the scheme will have **access to training** by registering on the skill connect portal.
- Those candidates who have completed their graduation/diploma in the academic year 2022-23 will be eligible for this scheme.

Ghettoization



Recently, the Supreme Court observed that the right given to religious and linguistic minorities to establish and administer their own educational institutions under Article 30 (1) of the Constitution was not intended to "ghettoise" them.

About Ghettoization:

- Ghettoization is a **social process that involves segregating and limiting members of a group to a small region**.
- It can also refer to the physical placement of marginalized or segregated social groups into specific residential areas.
- Ghettoization can be caused by a variety of factors, including **social, economic and cultural** marginalization.
- It can also be caused by **fear or hostility**, as communities may feel more secure living among their own.
- The term ghettoization was coined in **Venice**, where the **Jews were isolated and restricted**.
- An example of ghettoization in India is **Juhapura**, on the outskirts of **Ahmedabad**.
- It grew after the riots of **1969, 1985 and 1992**, but it became a ghetto of four to five lakh people after the 2002 killings.

GM Mustard



Recently, the Supreme Court has questioned the central government on whether the Genetic Engineering Appraisal Committee (GEAC) had considered the reports of the court-appointed Technical Experts Committee (TEC) on the biosafety of transgenic mustard hybrid DMH-11 before approving it for environmental release.

About GM Mustard:

- GM mustard is a **genetically modified crop** that is a **variant of Herbicide Tolerant (HT) mustard**.
- It is the **second GM crop to be approved** for seed production and testing.
- **DMH-11** (Dhara Mustard Hybrid) is a **transgenic mustard** that is a cross between the Indian mustard variety "**Varuna**" and the East European "**Early Heera-2**".
- In February 2016, the Genetic Engineering Appraisal Committee (GMEC) had allowed the commercial production of another GM crop viz. Mustard DMH-11.
- Scientists at Delhi University developed GM mustard and the project was partially funded by the Department of Biotechnology.

The Genetic Engineering Appraisal Committee:

- The Genetic Engineering Appraisal Committee (GEAC) is a **statutory body** that approves the commercial distribution of genetically modified (GM) crops.
- It is established under the **Ministry of Environment, Forests and Climate Change (MoEF&CC)**.
- It is constituted under the "**Rules for the Manufacture, Use/Import/Export and Storage of Hazardous Micro Organisms/Genetically Engineered Organisms or Cells (Rules, 1989)**".

Antimicrobial Resistance



Recently, entrepreneurship has emerged as a pivotal force in combating antimicrobial resistance.

About Antimicrobial Resistance:

- Antimicrobial resistance (AMR) is a **natural biological phenomenon** that occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines.
- This **makes infections harder** to treat and increases the risk of disease spread, severe illness and death.
- As a result, the medicines become ineffective and infections persist in the body, increasing the risk of spread to others.
- Bacteriophage therapy emerges as an **alternative method**, using viruses to target and annihilate bacteria.
- In **2017**, the **Union Ministry of Health and Family Welfare** released India's National Action Plan (NAP) for AMR.

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Place in News

South Africa

Recently, South Africa accused Israel of committing genocide against the Palestinians, and pleaded with the UN's top court.

South Africa:

Capitals: Pretoria (administrative), Bloemfontein (judicial) and Cape Town (legislative).



Location: South Africa is located at the southern tip of the **African continent**.

Boundaries: South Africa shares its border with Namibia, Botswana, Zimbabwe and Mozambique (North) and Lesotho and eSwatini (formerly Swaziland) to the East.

Physical Features:

- Thabana Ntlenyana, a mountain peak in Lesotho is the highest mountain in southern Africa and the highest peak in the Drakensberg.
- The **Orange River** is the longest river in South Africa and is one of the ten largest rivers in Africa.
- The iSimangaliso Wetland Park, previously known as the **Greater St. Lucia Wetland Park**, is a UNESCO World Heritage Site in South Africa.

POINTS TO PONDER

- Which city has been recently declared the cleanest city in Uttar Pradesh in Swachh Sarvekshan-2023? - **Noida**
- When was the Carbon Border Adjustment Mechanism (CBAM) adopted? - **May 17, 2023**
- When was the Anti-Defection Law, also known as the 10th Schedule of the Constitution, added? - **Constitution (52nd Amendment) Act, 1985**
- Which traditional medicine systems are covered in Module 2 of the supplementary chapter under ICD 11? - **Ayurveda, Siddha and Unani (ASU)**
- Which countries border Ecuador to the north and south, respectively? - **Colombia, Peru**

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