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To The Point

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GS Paper 2 – Health & Issue

1 10th WHO Global Tobacco Epidemic Report: A Decade of Progress and Persistent Challenges

Context: The **World Health Organization (WHO)** has released the **10th edition** of its *Global Tobacco Epidemic Report*, evaluating the global response to tobacco use since the launch of the **MPOWER** strategy in **2008**. This milestone edition reflects both significant progress and pressing challenges in the ongoing fight against tobacco-related harm.

Global Impact: MPOWER Strategy Reaches Over 6 Billion Lives

The report highlights that **over 6.1 billion people**—nearly 80% of the world's population—are now protected by at least one of the **MPOWER** tobacco control measures. Since **2007**, **155 countries** have adopted at least one of these six evidence-based strategies:

- **M**: *Monitor* tobacco use and prevention policies
- **P**: *Protect* people from tobacco smoke
- **O**: *Offer* help to quit tobacco
- **W**: *Warn* about the dangers of tobacco
- **E**: *Enforce* bans on tobacco advertising, promotion and sponsorship (TAPS)
- **R**: *Raise* taxes on tobacco

Notable Achievements and Insights:

Widespread Graphic Warnings Lead the Way:

- Among the MPOWER measures, **large graphic health warnings** on cigarette packaging have seen the **most extensive and consistent global implementation**. These visuals play a powerful role in deterring tobacco use, especially among new users and young people.

India's Global Leadership in Digital Regulation:

- India has emerged as a **global pioneer** by becoming the **first country** to apply **tobacco control rules to digital streaming platforms**. This bold step underscores India's commitment to adapt tobacco control to the changing media landscape.

Stringent TAPS Enforcement in India:

- India has taken a **strong stance against tobacco advertising**, ensuring strict enforcement of bans across **all forms of media**. This aggressive approach aligns with the "**E**" in MPOWER and plays a key role in reducing tobacco's visibility and appeal.

Tobacco Taxation: A Missed Opportunity

Despite being one of the **most effective** ways to reduce tobacco consumption—particularly among **youth** and **low-income populations—tobacco taxation remains the least adopted** MPOWER measure globally. The report calls for **urgent global action** to close this critical policy gap.

Fact: A 10% increase in tobacco price through taxation can reduce tobacco consumption by about **4% in high-income countries** and up to **8% in low- and middle-income countries**.

Tobacco's Toll: A Continuing Health Crisis

- **Over 7 million lives** are lost every year due to tobacco use—most of them in **low- and middle-income countries**.

- In **India**, tobacco causes more than **1.35 million deaths annually**, contributing significantly to **non-communicable diseases (NCDs)** like cancer, cardiovascular diseases, and chronic respiratory conditions.
- India ranks as the **second-largest producer** of tobacco globally, and the **4th largest** producer of **Flue-Cured Virginia (FCV)** tobacco, following **China, Brazil, and Zimbabwe**.

Looking Ahead: A Call to Action

Over the past two decades, countries burdened with high tobacco usage have made **remarkable strides** in reducing consumption. This success is largely driven by the **WHO Framework Convention on Tobacco Control (FCTC)** and the **MPOWER** package.

However, more work lies ahead:

- **Expand taxation policies** to curb demand effectively.
- **Strengthen cessation support services** in primary healthcare.
- **Counter the rise of novel tobacco products** like e-cigarettes and heated tobacco, especially among youth.

Conclusion: Sustaining Momentum, Filling Gaps

The 10th WHO report is both a celebration of progress and a **reminder of unfinished business**. As tobacco companies evolve their tactics, governments must continue to **innovate**, **regulate**, and **educate** to build a **tobacco-free future**.

GS Paper 3 – Economy

2 India's First Nationwide Household Income Survey to Launch in 2026

Context: For the first time in its history, **India will conduct a nationwide Household Income Survey** in **2026**, addressing a long-standing gap in the country's socio-economic data framework. Spearheaded by the **Ministry of Statistics and Programme Implementation (MoSPI)**, this ambitious initiative aims to deliver a **comprehensive picture of income levels, distribution, and inequality** across both **rural and urban India**.

About the Survey: Led by NSSO Under Expert Guidance

The survey will be executed by the **National Sample Survey Office (NSSO)**, operating under MoSPI. To ensure high-quality and globally comparable outcomes, a **Technical Expert Group (TEG)** has been established, chaired by renowned economist **Dr. Surjit S. Bhalla**.

Mandate of the TEG Includes:

- Finalizing **concepts**, **definitions**, **survey design**, and **sampling methods**.
- Integrating **global best practices** from nations like the **USA, Australia, Canada, and South Africa**.
- Developing rigorous **data quality protocols** and **estimation methods**.
- Leveraging **digital tools** to track technology-driven changes in income sources and patterns.
- Ensuring timely **publication** and **public access** to findings.

Why This Survey Matters: Bridging a Critical Data Gap

1. **Mapping Income for the First Time :** While India has decades of data on **consumption**, **employment**, and **poverty**, there is **no official record of household income distribution**. This survey aims to provide a **clear and reliable estimate** of income levels across demographic, geographic, and occupational lines.
2. **Smarter Welfare Delivery :** With accurate income data, the government can **target subsidies, welfare schemes**, and **direct benefit transfers** more precisely, ensuring that the **most vulnerable receive timely support**.
3. **Understanding the Impact of Digital & Informal Work:** The rise of the **gig economy**, **platform-based jobs**, and **automation** has changed how many Indians earn. This survey will explore the **real income implications** of this shift—something previous datasets have missed.
4. **Foundation for Better Fiscal Policy:** A true picture of **income distribution** can serve as a **benchmark** for designing equitable **tax policies**, **minimum wage structures**, and **fiscal redistribution programs**.
5. **Global Alignment:** Countries like the **USA**, **South Africa**, and **Australia** regularly conduct household income surveys. India's move will improve **international comparability** and enhance **economic transparency**.

Challenges in Implementation: Navigating Complex Realities

While the initiative is groundbreaking, several **practical and technical challenges** must be addressed:

1. **Income Underreporting:** Many households, especially those dependent on **informal or cash-based sources**, may hesitate to **disclose full income** due to fears of taxation or legal consequences.
2. **Diverse and Fragmented Income Streams:** Indian households earn from **agriculture, labor, remittances, pensions, self-employment**, and more. Accurately capturing and verifying these **multisource incomes** is complex.
3. **Inconsistency with Consumption and Savings:** Previous research shows income often reported **lower than consumption or savings**, suggesting **inaccurate recall or intentional misreporting**.
4. **Seasonal and Unstable Incomes:** Income in sectors like **agriculture** and **construction** varies seasonally. A **one-time survey** may miss these fluctuations unless **multiple rounds** are conducted.
5. **Field Investigator Preparedness:** Reliable data hinges on **well-trained surveyors** who can build trust, ask sensitive questions with empathy, and navigate **local economic dynamics** effectively.

Way Forward: Toward a Sustainable Income Data System

1. **Institutionalizing the Survey:** Rather than treating this as a one-time event, the Household Income Survey should be **institutionalized and repeated at regular intervals** (e.g., every 5 years), enabling policymakers to track **long-term trends** and **evaluate policy outcomes** more accurately.
2. **Investing in Enumerator Training:** Enumerators must receive **intensive training**, not only in technical tools but also in **ethical interviewing**, **building rapport**, and **understanding local income behavior**.
3. **Leveraging Technology:** Digital tools, such as **mobile-based data collection**, **automated cross-checking**, and **AI-assisted data validation**, can enhance accuracy and reduce human errors.

Conclusion: A Transformative Leap Toward Equitable Growth

The **2026 Household Income Survey** marks a **historic step in India's data ecosystem**. By capturing the **real income dynamics** of Indian households, it will empower policymakers to make **fairer, evidence-based decisions** and pave the way for a **more inclusive economy**.

GS Paper 3 – International Relation

3 India-ASEAN Trade Pact Under Review: Rethinking the Future of Regional Economic Ties

Context: In the past year, **India has held nine rounds of discussions** with the **Association of Southeast Asian Nations (ASEAN)** to review the **ASEAN-India Free Trade Agreement (AIFTA)**. Despite sustained engagement, **no tangible progress** has been achieved so far. The review was launched in **2024** to address growing concerns about **trade asymmetries** and **market imbalances**.

About the Agreement: Uneven Playing Field Since 2009

The **ASEAN-India Trade in Goods Agreement**, signed in **2009** and implemented in **2010**, laid the foundation for a liberalized trade regime between India and the 10 ASEAN member nations.

However, **India opened 71% of its tariff lines**, while key ASEAN countries like **Indonesia (41%)**, **Thailand (67%)**, and **Vietnam (66.5%)** reciprocated with **lower access**, leading to **imbalanced gains**.

Over the past **15 years**:

- **India's exports to ASEAN have doubled**
- But **imports have tripled**, widening the trade deficit

These growing imbalances have prompted a **comprehensive review** of the deal.

India-ASEAN Relations: A Broad-Based Strategic Partnership

Historical and Strategic Evolution

- Ties began in the **early 1990s** with India's **Look East Policy**, transformed into the **Act East Policy** in **2014**.
- India was elevated to **Full Dialogue Partner in 1996**, then to **Strategic Partner in 2012**, and **Comprehensive Strategic Partner in 2022**.

ASEAN: A Brief Overview

- **Established**: 1967 in Bangkok
- **Founders**: Indonesia, Malaysia, the Philippines, Singapore, Thailand
- **Headquarters**: Jakarta, Indonesia
- **Current Members**: 10 nations including Brunei, Cambodia, Laos, Myanmar, and Vietnam
- **Dialogue Partners**: India, China, USA, Japan, Australia, EU, among others

Economic & Strategic Engagement: A Growing Footprint

Trade and Investment:

- ASEAN is India's **4th largest trading partner**
- **Total bilateral trade reached USD 110.4 billion** in FY 2021–22
- Agreements include trade in **goods (2010)**, **services (2014)**, and **investment (2014)**

Connectivity and Infrastructure:

- Major projects like the **India-Myanmar-Thailand Trilateral Highway** and the **Kaladan Multimodal Transit Transport Project** aim to boost regional connectivity.

Defense and Security Cooperation:

- India actively participates in **ASEAN-led defense mechanisms**, including **ADMM+** and **joint naval drills** like the **ASEAN-India Maritime Exercise**
- India supports **ASEAN centrality** in its **Indo-Pacific strategy**, guided by the principle of **SAGAR** – *Security and Growth for All in the Region*

Socio-Cultural Ties:

- Cultural initiatives include the **ASEAN-India Network of Think Tanks**, **Student Exchange Programmes**, and **training programs for ASEAN diplomats**

Key Challenges in the ASEAN-India FTA

1. **Rising Trade Deficit:**
   - India's trade deficit with ASEAN **ballooned to USD 44 billion** in FY 2023, up from **USD 8 billion** in FY 2013.
   - Imports, particularly of **palm oil, rubber, electronics, and machinery**, far outpace exports.
2. **Limited Access for Indian Services:** Despite India's global strength in **IT, health, education, and professional services**, ASEAN has offered **minimal liberalization** in these sectors.
3. **Non-Tariff Barriers (NTBs):** Indian exports, especially **agriculture and pharmaceuticals**, face **complex standards, certifications, and quotas**, negating the benefits of tariff cuts.
4. **Rules of Origin Loopholes:** Lax rules allow **third countries like China** to reroute products through ASEAN, enjoying tariff benefits and undercutting **Make in India** efforts.
5. **Agricultural Disadvantage:** Indian farmers struggle to compete with **cheap imports** from ASEAN, while facing **high sanitary and phytosanitary standards** on their own exports.
6. **Negotiation Asymmetry:** ASEAN negotiates as a **unified bloc**, while India represents itself alone, limiting its **leverage in talks**.

Way Forward: A Strategic Rebalancing

1. **Urgent Need for FTA Review:** India and ASEAN agreed in **2022** to review the pact and **rectify structural imbalances**. India is pushing for:
   - **Stricter Rules of Origin**
   - **Tighter safeguard mechanisms**
   - **Greater access for services and agriculture**
2. **Enhancing India's Negotiation Strategy:** India must strengthen its **institutional capacity**, seek **coalitions with like-minded ASEAN members**, and leverage its **growing global standing** as a leader of the **Global South**.
3. **Strengthening Regional Connectivity:** Fast-tracking infrastructure projects will **reduce trade costs**, increase **economic interdependence**, and support **supply chain integration**.

4. **Focusing on Investment and Innovation:** Encouraging **joint ventures**, **R&D partnerships**, and **technology transfer** can balance trade and **build long-term competitiveness**.

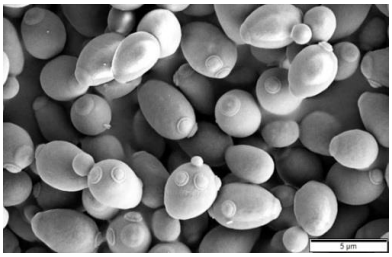
Conclusion: Seizing the ASEAN Opportunity

The **ASEAN-India FTA**, once seen as a bold step toward regional integration, now stands at a **crossroads**. While it has expanded trade volumes, it has also **exposed vulnerabilities** in India's trade architecture.

A **balanced, mutually beneficial agreement** is now essential—not only to correct past inequities but also to realize the full potential of the **India-ASEAN strategic partnership** in the evolving Indo-Pacific landscape.

GS Paper 3 – Science and Technology

4 Yeast Reveals Physics May Spark Multicellular Life — Even Without Genetic Changes



Context: In a groundbreaking discovery, scientists from the **National Centre for Biological Sciences (NCBS)** have uncovered how **multicellular life** may emerge not solely through genetic mutations, but also through **purely physical processes**. Their study, focused on **snowflake yeast**, challenges traditional ideas about the early evolution of complex life forms.

What is Yeast? A Tiny Yet Powerful Organism

Yeast is a **unicellular fungus** with widespread applications:

- **In baking**: helps bread rise by producing carbon dioxide.
- **In alcohol production**: drives fermentation to produce ethanol.
- **In research**: serves as a model organism to study genetics, cell division, and evolution.

It reproduces via **budding**—a small daughter cell forms on the parent, receives a copy of the nucleus, grows, and detaches as an independent cell.

Snowflake Yeast: When Cells Refuse to Separate

Unlike normal yeast, **snowflake yeast** harbors a **genetic mutation** that prevents new cells from separating after budding. Instead, they remain attached, forming **branching clusters** that resemble **snowflakes**. These clusters:

- Become **visible to the naked eye** within **12 hours**.
- Are used as **model systems** to study how **multicellularity** might have evolved from single-celled organisms.

The Scientific Mystery: How Do Clusters Keep Growing?

Biologists have long believed that **multicellular organisms** require complex systems like **blood vessels** to deliver nutrients to inner cells. Without such systems, growth should stall once the inner core is starved.

Yet in laboratory conditions, **snowflake yeast clusters defy expectations**—they **continue to grow** rapidly, even without any specialized transport system.

New Discovery: Fluid Physics Enables Growth

The NCBS team found that a **basic physical phenomenon—fluid flow**—explains this unexpected growth. The clusters grew **only in liquid**, not in thick gel mediums.

Two Main Types of Nutrient Movement:

- **Diffusion**: Slow movement of nutrients from high to low concentration (limited to ~50 micrometers).
- **Advection**: Bulk fluid movement that carries nutrients rapidly and over longer distances.

In snowflake yeast, **advection** occurs naturally. Here's how:

- Yeast **consumes glucose** and releases **alcohol** and **carbon dioxide**.
- These waste products make the surrounding fluid **less dense**.

- Less dense fluid **rises**—similar to **warm air rising**.
- This creates a **natural upward flow**, pulling **fresh nutrient-rich fluid** into the cluster from below and sides.

This **self-generated fluid circulation** ensures **all cells**, even those deep inside, receive enough nutrients to stay alive and divide.

Why This Matters: A New Pathway to Multicellularity

Traditional evolutionary theory emphasizes **gradual genetic mutations** as the driving force behind the emergence of multicellular organisms. However, this study provides **compelling evidence** that **simple physical and chemical laws**—like fluid dynamics—can **enable multicellular behavior even before** genetic changes take hold.

Once physical processes stabilize multicellularity, **evolution may later reinforce it genetically**, making it a **permanent trait**.

Conclusion: Evolution Is More Than Just Genes

This study reveals that **evolutionary breakthroughs** may begin not just at the level of DNA, but through **the laws of physics themselves**. The work of Indian scientists on **snowflake yeast** opens a **new dimension** in our understanding of life's origins—where **simple forces** might lead to **complex forms**, even in the absence of mutation.

GS Paper 3 – Environment and Ecology

5 Enhanced Rock Weathering: A Natural Climate Fix Gains Global Momentum

Context: Enhanced Rock Weathering (ERW) is fast becoming a preferred tool in the **global carbon removal market**, with major **tech firms**, **airlines**, and **fast fashion brands** investing in ERW-based **carbon credits** to offset their emissions. As the world races to meet climate goals, **ERW is emerging as a scalable, nature-aligned solution**.

What is Enhanced Rock Weathering?

Enhanced Rock Weathering is a technique that **accelerates a natural geological process**—called **chemical weathering**—to remove **carbon dioxide (CO_2)** from the atmosphere and store it safely.

How It Works:

- **Weathering** occurs when **CO_2 reacts with rainwater**, forming a weak acid called **carbonic acid**.
- This acid **breaks down rocks**, binding CO_2 into **bicarbonates**, which eventually form stable minerals like **limestone**, locking carbon away for **thousands to millions of years**.
- **ERW speeds this process** by spreading finely crushed **quick-weathering rocks**, such as **basalt**, on land. The greater the surface area, the **faster the chemical reactions**.

Global Reach of ERW Projects:

ERW initiatives are now being piloted or scaled up across:

- **Europe**
- **North and South America**
- **Asia**

These projects often combine carbon removal with **agricultural co-benefits**, making them attractive to both **climate investors** and **farmers**.

Why It's Effective: Science Behind ERW

The **carbon-capturing efficiency** of ERW depends on multiple factors:

- **Rock type and grain size** (finer grains weather faster)
- **Climate conditions** (more heat and rainfall speed up reactions)
- **Soil characteristics and land management** (influence how carbon is absorbed and retained)

Environmental and Agricultural Benefits:

- Increases **soil alkalinity**, helping to:
  - Improve **soil health and fertility**
  - Promote **crop growth**
  - Accelerate **soil formation**
- **Reduces ocean acidification** by preventing excess soil acids from entering rivers and eventually releasing **CO_2 into the atmosphere**

Moreover, **basalt**—the preferred rock for ERW—is:

- **Abundant globally**

- Often a **byproduct of quarrying**, making it **cost-effective and sustainable**

Challenges and Concerns:

Despite its promise, **ERW faces critical challenges**:

Heavy Metal Contamination:

- Some **rapid-weathering rocks** may contain **toxic heavy metals** such as **nickel, chromium, or cadmium**.
- These elements could **leach into the soil or water**, posing **environmental and health risks** if not properly managed.

Conclusion: A Promising Tool, Not a Silver Bullet

Enhanced Rock Weathering represents one of the most **nature-aligned carbon removal techniques** available today. While still in early commercial stages, it holds tremendous potential when paired with **rigorous monitoring**, **responsible rock selection**, and **local soil management practices**.

GS Paper 3 – Geography

6 India and South Africa Strengthen Naval Ties with Submarine Cooperation Pact

Context: On **June 25, 2025**, **India and South Africa** signed crucial agreements focused on **submarine cooperation**, during the **9th Joint Defence Committee (JDC) meeting** held in **South Africa**. This development highlights the growing depth of **India–Africa defence relations**, particularly in the realm of **maritime security and underwater capabilities**.

South Africa: Key Partner at the Southern Tip of Africa

Political Capital Structure:

South Africa is unique for having **three capital cities**, each serving a different function:

- **Pretoria** – *Administrative Capital*
- **Cape Town** – *Legislative Capital*
- **Bloemfontein** – *Judicial Capital*

Geographical Location:

- **Southernmost country** on the **African continent**
- Shares **land borders** with:
  - **Namibia** to the northwest
  - **Botswana** and **Zimbabwe** to the north
  - **Mozambique** and **Eswatini** to the northeast and east
- **Lesotho**, a landlocked country, is **entirely surrounded** by South African territory
- **Maritime boundaries** include the **Indian Ocean** (southeast) and the **Atlantic Ocean** (southwest)

Geographical and Natural Wealth:

Mineral Riches:

South Africa is renowned for its abundant **natural resources**, including:

- **Gold**, **coal**, **iron ore**, **manganese**, **nickel**, **antimony**, and **gem diamonds**
- In **2022**, it was the **world's leading producer of chromite ore**, crucial in stainless steel production

Major Rivers:

- **Orange River**: South Africa's longest river, flows westward into the **Atlantic Ocean**
- **Limpopo River**: Flows eastward, crosses the **Tropic of Capricorn twice**, and empties into the **Indian Ocean**

Mountain Range:

- **Drakensberg Mountains**: The highest mountain range in Southern Africa, known for its dramatic cliffs, rich biodiversity, and cultural significance with ancient **San rock art**

Additional Insight: Strategic Importance:

South Africa's position between two major oceans makes it a **key maritime gateway** for global trade. Its growing defence collaboration with India reflects shared interests in:

- **Combating piracy and illegal fishing**
- **Securing sea lanes of communication**
- **Enhancing joint naval exercises and technology transfer**