



Daily Current Affairs



To The Point by Dhananjay Gautam

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1 Why the World Needs a Global Plastic Treaty

Context: In 2022, the **United Nations Environment Assembly (UNEA)** initiated the process of creating a **legally binding global treaty** to combat the growing crisis of plastic pollution, including its impact on marine ecosystems. Now, representatives from over **170 nations** are convening in **Busan, South Korea**, for the fifth and final round of negotiations, aiming to finalize the treaty by **2024**.



The Growing Challenge: A Surge in Plastic Production:

- **Plastic production has doubled from 234 million tonnes (mt) in 2000 to 460 mt in 2019.**
- **By 2040, this figure is expected to soar to 700 mt, as per the OECD.**

Why a Global Plastic Treaty is Essential:

- 1. Longevity of Plastic**
 - Plastic takes **20 to 500 years** to decompose, with less than **10% of plastic** being recycled.
 - Annually, **400 mt of plastic waste** is generated, a number predicted to grow by **62% by 2050**.
- 2. Environmental and Health Impacts**
 - Plastic production contributed to **6% of global greenhouse gas emissions** in 2020.
 - If unchecked, emissions from plastic could increase by **20% by 2050**.
 - Plastic waste pollutes ecosystems, breaks into **microplastics**, and poses **serious health risks**, including **cancer, endocrine disruption, and reproductive disorders**.
- 3. Ecosystem Destruction:** Rivers, oceans, and land ecosystems face severe threats due to plastic waste, affecting biodiversity and natural habitats.

India's Contribution to Plastic Pollution:

- India is responsible for around **20% of global plastic pollution**, producing **9.3 million tonnes** of plastic waste annually.
- In 2022, India banned **single-use plastics** to curb environmental damage.

Key Focus of Treaty Negotiations:

- 1. A Life-Cycle Approach:** The treaty emphasizes addressing plastic pollution across its entire **life cycle**—from production to disposal and recycling.
- 2. Production Caps Debate**
 - Some nations, like **Rwanda**, advocate for ambitious targets, proposing a **40% reduction in plastic pollution by 2040**.
 - Others, including **Saudi Arabia, Russia, and India**, oppose strict production limits, focusing instead on improving **waste management and sustainable use**.

India's Position on the Global Treaty:

- 1. Opposition to Production Caps**
 - India argues that restricting polymer production exceeds the UNEA's mandate.
 - It prefers measures focusing on downstream management and sustainable practices.
- 2. Call for Financial and Technical Support**
 - India emphasizes the need for **financial assistance and technical expertise** for effective implementation of the treaty.
- 3. Scientific Regulation of Chemicals**
 - Decisions regarding harmful chemicals in plastics should be **science-based** and managed at the **national level**.

A Global Responsibility:

The proposed treaty represents an opportunity to address one of the most pressing environmental challenges of our time. **Global cooperation** and decisive action are essential to curtail the harmful impacts of plastic pollution, protecting both human health and the planet's ecosystems for future generations.

2 India's Engagement at the 11th ADMM-Plus Forum

Context: India's Defence Minister participated in the 11th ASEAN Defence Ministers' Meeting-Plus (ADMM-Plus) in Vientiane, Laos, highlighting India's vision for regional cooperation.

Key Highlights:

1. **Freedom of Navigation:**
 - Emphasized adherence to the **United Nations Convention on the Law of the Sea (UNCLOS, 1982)** to ensure **free navigation** and **overflight** in the **Indo-Pacific region**.
 - Advocated for a **Code of Conduct** that respects international law.
2. **Adoption of Buddhist Principles:**
 - Highlighted the relevance of **Buddhist values** in resolving conflicts and fostering peace in a **polarized world**.
3. **"Asian Century" Vision:**
 - Celebrated **ASEAN's economic dynamism**, emphasizing vibrant **trade, commerce, and cultural exchanges**.
 - Stressed **India's Act East Policy**, which has deepened ties with ASEAN nations since its launch in **2014**.
4. **Climate Change and Defence:**
 - Proposed the development of an **ADMM-Plus Defence Strategy** to address interlinked challenges of **climate change** and security.
5. **Safeguarding Global Commons:**
 - Advocated for the protection of **shared natural resources** such as the **high seas, outer space, and Antarctica**, which lie beyond national boundaries.

**What is ADMM-Plus?**

- **Multilateral Defence Framework:** Brings together the 10 ASEAN members and 8 dialogue partners, including **India, China, Russia, Japan, South Korea, Australia, New Zealand, and the US**.
- **Established:** Inaugural meeting held on **October 12, 2010**, in **Hanoi, Vietnam**.
- **Annual Engagement:** Since 2017, the forum meets yearly to strengthen **regional security** and foster **practical cooperation**.

Focus Areas of ADMM-Plus:

The framework focuses on **seven areas of practical cooperation:**

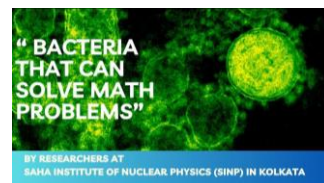
1. **Maritime Security**
2. **Counter-Terrorism**
3. **Humanitarian Assistance and Disaster Relief (HADR)**
4. **Peacekeeping Operations**
5. **Military Medicine**
6. **Humanitarian Mine Action**
7. **Cyber Security**

Conclusion:

Each focus area is led by **Experts' Working Groups (EWGs)** co-chaired by ASEAN member states and Plus countries, operating in **three-year cycles**. The ADMM-Plus forum and India's proactive contributions emphasize its commitment to fostering **peace, security, and stability** in the Indo-Pacific and beyond.

3 Bacteria That Solve Math Problems: A New Era in Synthetic Biology

Context: Scientists at the **Saha Institute of Nuclear Physics, Kolkata**, have achieved a groundbreaking feat by engineering bacteria to perform **mathematical computations**. This innovation marks a significant step forward in **synthetic biology** and its potential applications.

**Bacteria as Biological Computers:**

- Researchers modified **Escherichia coli (E. coli)** to function as **biological computers**, capable of solving mathematical problems such as:
 - Determining whether a number is **prime**.
 - Identifying whether a letter is a **vowel**.
- By introducing **genetic circuits**, the bacteria were programmed to respond to specific **chemical inducers**, mimicking the behavior of **artificial neural networks (ANNs)**.

How It Works: Bactoneurons and Binary Code:1. **Bactoneurons:**

- Engineered bacteria act like **neurons** in a neural network, capable of processing inputs and producing outputs.
- These neurons respond to chemical signals by emitting **fluorescent proteins**, which serve as the answers.

2. **Binary Code System:**

- Mathematical problems are translated into **binary code**, represented by the **presence or absence** of specific chemicals.
- The bacteria decode the input and provide a "yes" or "no" answer through their **fluorescent response**.

Beyond Simple Calculations:

- These bacterial computers can also tackle **complex optimization problems**, such as calculating how many pieces a pie can be divided into with a set number of straight cuts.
- This demonstrates their ability to handle increasingly **sophisticated computational tasks**, opening doors to new possibilities in various domains.

Potential Applications:

- This innovation could revolutionize fields such as:
 - **Data processing** in biological systems.
 - **Optimization** in industrial processes.
 - **Problem-solving** in healthcare and environmental science.

Future Prospects:

The use of engineered bacteria as biological computers not only showcases the synergy between **biology** and **mathematics** but also hints at a future where **living organisms** could solve problems once confined to traditional computing. This exciting development is a testament to the limitless potential of **synthetic biology**.

4 Access to Medicine Index Report 2024: Bridging Healthcare Gaps in LMICs

Context: The **Access to Medicine Foundation** has released its **2024 Index Report**, shedding light on global pharmaceutical companies' efforts to improve **medicine accessibility** in **low- and middle-income countries (LMICs)** amidst persistent challenges.

Key Findings of the Report:

1. Limited Clinical Trials in LMICs

- Despite hosting **80% of the global population**, LMICs account for only **43% of clinical trials** globally.
- This exclusion restricts LMIC populations from participating in the development of new medicines, delaying access to innovative treatments.

2. Restricted Technology Transfers

- **Voluntary licensing** and **technology transfers** are largely concentrated in countries like **Brazil, China, and India**, leaving **sub-Saharan Africa** significantly underserved.

3. Inequities in Medicine Access

- Over **61% of assessed pharmaceutical products** lack strategies to address the needs of **low-income countries**, leading to uneven distribution efforts concentrated in upper-middle-income regions.

4. Decline in R&D for Priority Diseases

- Pharmaceutical companies are pulling back from research into **priority diseases** such as **malaria, tuberculosis, and neglected tropical diseases**, which disproportionately impact LMICs.

Challenges in Accessing Medicines in LMICs:

Economic Barriers:

- **High costs of essential medicines**, especially patented drugs, limit access for individuals and strained healthcare systems.
- **Out-of-pocket expenses** force families to choose between medical treatment and basic necessities, worsening health inequities.

Infrastructure and Supply Chain Issues:

- Poor transportation infrastructure and unreliable **cold chain systems** hinder medicine delivery, especially in rural areas.
- **Supply chain disruptions** during pandemics or natural disasters exacerbate shortages.

Regulatory Weaknesses:

- Weak regulations allow the spread of **counterfeit and substandard medicines**, reducing treatment efficacy and safety.
- LMIC-specific diseases remain under-prioritized in pharmaceutical innovation.

Workforce and Cultural Challenges

- Shortages of **trained healthcare professionals** in rural regions limit proper prescription and medication management.
- **Low health literacy** and cultural barriers reduce adherence to prescribed treatments.

Way Forward: Solutions for Equitable Access:

1. Strengthening Local Manufacturing

- Establish **regional pharmaceutical hubs** to ensure consistent medicine supply and reduce import dependency.
- Example: **African Union's plan** to produce 60% of vaccines needed on the continent by **2040**.

2. Investing in R&D for LMIC-Specific Needs

- **Public-private partnerships** should focus on affordable, region-specific solutions for diseases like malaria and tuberculosis.
- Collaborations like the **Medicines Patent Pool** can expand access to essential medicines.

3. Digital Healthcare Expansion

- **Digital health platforms** like **telemedicine** and AI-driven diagnostics can revolutionize care delivery.
- Models like India's **Co-WIN** and **U-WIN** portals demonstrate scalable solutions for vaccinations and healthcare coordination.





4. Streamlined Regulatory Processes

- Harmonized regulatory frameworks can accelerate medicine approvals and ensure high standards.
- Policies to **prevent patent evergreening** and promote **local generic production** are crucial.

5. Expanding Financing Mechanisms

- **Pooled procurement models** and increased international funding can make essential medicines more affordable.

6. Addressing Gender Disparities

- Expanding R&D for **women's and transgender health** and targeting gender-based barriers in healthcare are vital for improving equity.

Conclusion:

The **Access to Medicine Index Report 2024** highlights the urgent need for pharmaceutical companies and policymakers to address inequities in **healthcare access** for LMICs. By focusing on **innovative solutions**, **local capacity building**, and **inclusive strategies**, we can bridge the gaps and ensure that life-saving medicines reach the most vulnerable populations.



5

UNHCR Global Appeal 2025: A \$10 Billion Initiative to Address the Refugee Crisis

Context: The United Nations High Commissioner for Refugees (UNHCR) has launched a \$10 billion global appeal for 2025, aimed at addressing the urgent needs of millions of refugees, displaced persons, and stateless people worldwide. This ambitious funding appeal is crucial to meet the challenges of protecting, assisting, and empowering refugees while helping them find sustainable solutions for their precarious situations.

The Global Refugee Crisis: An Ongoing Challenge:

As of 2023, 117.3 million people globally have been forcibly displaced, with 40% of them being children, according to the UNHCR Global Trends Report. Refugees are individuals who have been forced to flee conflict, violence, persecution, and the adverse effects of climate change.

Key Causes of Forced Displacement:

- Conflict and violence (e.g., ongoing crises in Syria and Ukraine)
- Persecution (e.g., Myanmar Rohingya crisis)
- Climate change and environmental disasters.

Challenges Faced by Refugees and Host Countries:

For Refugees:

- Lack of basic necessities such as food, shelter, and healthcare.
- Exposure to discrimination, exclusion, and trafficking.
- Vulnerability to exploitation and other forms of abuse.

For Host Countries:

- Sudden population increases strain local resources (healthcare, housing, etc.).
- Unemployment and social tensions among host communities.
- Pressure on infrastructure and public services.

Key Initiatives to Address the Crisis:

Global Compact on Refugees (2018)

This agreement provides a comprehensive framework to support both refugees and their host countries, aiming for better management of refugee movements and ensuring longer-term solutions.

Global Refugee Forum:

Held every four years, this forum brings together governments, international organizations, and other stakeholders to discuss the challenges refugees face and to find lasting solutions for both refugees and host communities.

United Nations Relief and Works Agency (UNRWA):

Established in 1949, UNRWA provides assistance and protection to Palestinian refugees, ensuring that they receive basic support and are protected in their host countries.

UNHCR: Mission and Achievements

About UNHCR:

- **Headquarters:** Geneva, Switzerland
- **Founded:** In 1950 by the UN General Assembly
- **Mission:** To protect the rights and build a better future for people forced to flee their homes due to conflict and persecution.
- **Operations:** UNHCR works in 136 countries, providing life-saving aid and facilitating solutions for refugees, internally displaced people, and stateless individuals.

Notable Achievements:

Nobel Peace Prizes: UNHCR has been awarded the Nobel Peace Prize twice, in 1954 and 1981, for its tireless efforts in supporting displaced people and advocating for their rights globally.

Conclusion:

The UNHCR Global Appeal 2025 marks a critical step toward addressing the growing refugee crisis. With a focus on humanitarian aid, long-term solutions, and collaboration with host countries, the appeal seeks to alleviate the suffering of millions while paving the way for a sustainable and inclusive future for refugees and displaced populations around the world.



6 WAVES OTT Platform: A New Era of Digital Entertainment

Context: WAVES, developed by Prasar Bharati, is India's latest **digital streaming platform** designed to meet the nation's growing appetite for online entertainment. This **innovative platform** offers a comprehensive suite of features, blending traditional and modern content formats to cater to diverse audiences.

Features of WAVES OTT Platform:

WAVES offers an **all-in-one digital experience**, including:

1. **On-Demand Content**
 - Access to **movies, shows, ebooks, and historical archives** of India's rich cultural and social heritage.
2. **Live Events**
 - Streaming of **religious programs, cricket tournaments, and other significant events** as they happen.
3. **Gaming Hub**
 - Interactive **games** for users of all ages, making it a family-friendly destination.
4. **Radio and TV Streaming**
 - Seamless access to **live TV and radio**, with 65 channels, including **private broadcasters**.
5. **E-Commerce Integration**
 - Explore **online shopping** through partnerships with the **ONDC network**, blending entertainment and convenience.

**Understanding OTT Platforms:**

Over-the-Top (OTT) platforms are digital streaming services that deliver content directly over the internet, bypassing traditional cable or satellite networks.

Key Features of OTT Platforms:

- **On-Demand Content:** Watch what you want, when you want.
- **Flexibility:** Choose from **subscription-based** or **free** models.
- **Device Compatibility:** Stream across multiple devices, from smartphones to smart TVs.
- **Personalized Experience:** Get content tailored to your preferences.

Why WAVES Stands Out:

With its unique blend of **entertainment, education, and commerce**, WAVES offers a platform that resonates with Indian audiences, making it a **one-stop destination** for streaming and beyond.