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## Fixed Dose Combination (FDC)

Context: Fourteen fixed-dose combination (FDC) medicines found to lack therapeutic relevance have been banned by the Central Government through a gazette notification

A combination of two or more actives in a fixed ratio of doses. This term is used generically to mean a particular combination of actives irrespective of the formulation or brand.

It may be administered as single-entity products given concurrently or as a finished pharmaceutical product.

For instance, a combination of nimesulide and paracetamol that is prescribed as an antipyretic (used to prevent or reduce fever).

FDCs are combinations of one or more known drugs and can be useful in the treatment of some diseases since the combination can improve patient compliance.



## **Fixed Dose Combination (FDC)**

For instance, if a patient has to take three different medications for a particular treatment, she may forget to take one. But if all three medications are combined into one tablet or one syrup, the chance of her forgetting to take one or two of the drugs is reduced.

For diseases such as AIDS, it is well documented that FDCs have proven to be very useful in improving patient compliance, which at the end of day improves treatment outcomes

## **CLOUD SEEDING**

Context: Recently, Indian Institute of Technology (IIT) Kanpur has successfully conducted a test flight for cloud seeding. Artificial rain, also known as cloud seeding, is a method used to enhance precipitation by dispersing substances into the air to encourage the formation of rain or snow.

This technique involves seeding clouds with materials such as silver iodide, potassium iodide, or dry ice, which serve as nuclei for water droplets to form around.

As these particles attract moisture, they can lead to the growth of larger droplets and potentially stimulate precipitation within clouds that might not otherwise produce rain or snow.

## **CLOUD SEEDING**

The cloud seeding trial in Maharashtra's Solapur region led to an 18% increase in rainfall compared to the usual patterns.

Scientists from the Indian Institute of Tropical Meteorology in Pune and other institutes conducted this study.

Calcium chloride particles were released into these convective clouds to stimulate rainfall.

## **World Environment Day and UNEP**

The World Environment Day, hosted under the United Nations Environmental Programme (UNEP), marks a day to raise awareness and action about the environmental catastrophes of the modern world

World Environment Day has a specific host country and a theme. For 2023, the host is the West African country of Côte d'Ivoire, in partnership with the Netherlands; while the theme is preventing plastic pollution.

In 1972, a conference held by the United Nations in Stockholm was the first UN conference which had the environment as its major agenda.

It also recognised the right to live in a healthy environment as the basic right of any human being.

## ↳ **United Nation Environment Program**

It was established after the Environment Conference in Stockholm - 1972

It is an agency of the UN that coordinates Environmental Actions.

It's mission is to provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations.

Through its campaigns, particularly World Environment Day, UNEP raises awareness and advocates for effective environmental action

Some reports by it: Emission Gap Report,

Global Environment Outlook,

Frontiers,

Invest into Healthy Planet.

# **United Nation Environment Program**

## **Major Programmes by UNEP**

**Clean up the World** /

**Billion Tree Campaign** /

**World Environment Day (June 5th)** /

**Awards Given by UNEP**

**Champions of Earth Award**

**SEED awards: For entrepreneurs**

## PHAGE THERAPY

Bacteriophages, or phages, are viruses that specifically target bacteria.

Phage therapy involves using phages to treat bacterial infections.

The antibiotics obliterate harmful bacteria, while simultaneously decimating the microbiota (thus triggering a new set of problems)

However, each phage has evolved to more narrowly target bacterial strains or species.

## **PHAGE THERAPY**

Bacteriophages kill bacteria by making them burst or lyse. This happens when the virus binds to the bacteria. A virus infects the bacteria by injecting its genes (DNA or RNA).

The phage virus copies itself (reproduces) inside the bacteria. This can make up to 1000 Trusted Source new viruses in each bacterium.

Finally, the virus breaks open the bacteria, releasing the new bacteriophages.

## PHAGE THERAPY

What about the remaining Phages?

Bacteriophages can only multiply and grow inside a bacterium. Once all the bacteria are lysed (dead), they'll stop multiplying. Like other viruses, phages can lay dormant (in hibernation) until more bacteria show up

## **CELL-CULTIVATED MEAT**

What is this?

It's meat grown from the cells of animals in steel tanks. Though it's known in the industry as cultivated meat, it's sometimes called cultured meat, lab-grown meat or cell-based meat.

It starts with cells, which can come from a fertilized egg, a special bank of stored cells or tissue initially taken from a living animal.

To make cell-cultivated meat, these two companies isolate the cells that make up this meat (the meat that we consume), and put them in a setting where they have all the resources they need to grow and make more copies of themselves.

These resources are typically nutrients, fats, carbohydrates, amino acids, the right temperature, etc.



## **CELL-CULTIVATED MEAT**

The 'setting' in which this process transpires is often a bioreactor (also known as a 'cultivator'), a sensor-fit device – like a container – that has been designed to support a particular biological environment.

Because of the techniques involved, producing meat in this way is also called cellular agriculture.

Once these cells have become sufficiently large in number, which takes around two to three weeks in Upside's process, they resemble a mass of minced meat.

They are collected and then processed, with additives to improve their texture and/or appearance, and are destined for various recipes

## **LAB GROWN DIAMONDS**

Context: The 2023 Union Budget promises to reduce the basic customs duty on seeds used in the manufacture of lab-grown diamonds in a bid to popularise their production in India— the duty on seeds for rough LGDs will be reduced from 5% to nil

LGD are manufactured in laboratories, as opposed to naturally-occurring diamonds.

However, the chemical composition and other physical and optical properties of the two are the same

Naturally-occurring diamonds take millions of years to form; they are created when carbon deposits buried within the earth are exposed to extreme heat and pressure.

## LAB GROWN DIAMONDS

On the other hand, LGDs are mostly manufactured through two processes – high pressure, high temperature (HPHT) method or Chemical Vapour Deposition (CVD) method.

Both HPHT and CVD methods of growing diamonds artificially begin with a seed – a slice of another diamond. In the HPHT method, the seed, along with pure graphite carbon, is exposed to temperatures around 1,500 degrees Celsius and extremely high pressure.

In the CVD method, the seed is heated to around 800 degrees Celsius inside a sealed chamber filled with a carbon-rich gas. The gas sticks to the seed, gradually building the diamond.

Visually and chemically, the two are the same. However, the environmental footprint of a diamond grown in a laboratory is much lesser than that of a naturally-occurring diamond.

## **United Nations Office for Outer Space Affairs (UNOOSA)**

It works to promote international cooperation in the peaceful use and exploration of space,

It works for utilisation of space science and technology for sustainable economic and social development.

The Office assists any United Nations Member States to establish legal and regulatory frameworks to govern space activities

It strengthens the capacity of developing countries to use space science technology and applications for development by helping to integrate space capabilities into national development programmes.

## **The Outer Space Treaty**

**The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies**

**With effect from: October 10, 1967**

**The Outer Space Treaty: Salient features**

**It is often hailed as the magna carta of space law**

**It binds its signatories to use outer space only for peaceful purposes— in accordance with international law**

**It prohibits the weaponisation of space; parties are debarred from placing nuclear or other weapons in orbit or on the moon or other celestial bodies**

## **The Outer Space Treaty**

No country can claim sovereignty over the moon or any other bodies in space and must carry out space ventures openly

Countries are to be responsible for their activities in space, being liable for damage caused by any objects launched into space from their territory

Countries must help astronauts who are in distress, and space installations and vehicles of one nation are to be open to other nations on a reciprocal basis.

## Report and Index

Global Slavery Index ✓

Released by: Walk Free Foundation ✓

It is an assessment of modern slavery conditions in 160 countries.

The index uses data released by the International Labour Organisation (ILO), Walk Free, and the International Organisation for Migration (IOM)

Among the G20 nations, India tops the list with 11 million people working as forced labourers, followed by China, Russia, Indonesia, Turkey and the U.S. ✓

## Report and Index

### Gender Social Norm Index: UNDP

The Gender Social Norms Index (GSNI) quantifies biases against women, capturing people's attitudes on women's roles along four key dimensions: political, educational, economic and physical integrity.

The index, covering 85 percent of the global population, reveals that close to 9 out of 10 men and women hold fundamental biases against women.

Nearly half the world's people believe that men make better political leaders than women do, and two of five people believe that men make better business executives than women do.

## **Report and Index**

**Gender biases are pronounced in both low and high Human Development Index (HDI) countries.**

**These biases hold across regions, income, level of development and cultures—making them a global issue**

## Report and Index

### The Global Liveability Index

It is a yearly report published by the Economist Intelligence Unit (EIU).

The index ranks 173 cities based on their liveability factor, which is determined by assessing stability, healthcare, culture and environment, education, and infrastructure

In 2023, the average liveability score reached a 15-year high, rising from 73.2 to 76.2 out of 100.

This is attributed to a return to order after the COVID-19 pandemic and better healthcare and education in developing countries

New Delhi and Mumbai are at 141st position and Chennai at 144th. Ahmedabad and Bengaluru are ranked 147 and 148, respectively.

## **World Health Assembly**

The World Health Assembly is the decision-making body of WHO.

It is attended by delegations from all WHO Member States and focuses on a specific health agenda prepared by the Executive Board.

The main functions of the World Health Assembly are to determine the policies of the Organization, appoint the Director-General, supervise financial policies, and review and approve the proposed programme budget.

## World Health Assembly

The World Health Assembly is the main decision-making body of WHO and is comprised of 194 Member States. Every year, generally in May, delegates from all Member States come together to agree on the Organization's priorities and policies

At the Health Assembly, country delegates make decisions on health goals and strategies that will guide their own public health work and the work of the WHO Secretariat to move the world towards better health and well-being for all.

The Health Assembly also serves as a forum for reporting back on the implementation of the areas of work set, in order to determine what has been achieved and decide on strategies for addressing the gaps.

The Health Assembly is held annually in Geneva, Switzerland.

India

## **Atlantic Treaty**

The Atlantic Declaration is a symbolic representation of the political will in UK and US to work together on critical areas and make this alliance ready for the future

“The Atlantic Declaration: A Framework for a Twenty-First Century US-UK Economic Partnership” —during the latter’s visit to Washington.

Declared as the first of its kind, the declaration and its action plans are expected to promote a “new type of innovative partnership” to cover all areas of cooperation including technology, economy and trade.

While deepening the trade and investment relations, the declaration is also expected to strengthen the UK-US cooperation in sectors like defence, health, space, and science.

## **Electronically Transmitted Postal Ballot System for NRIs**

The **Electronically Transmitted Postal Ballot System (ETPBS)** was introduced in **2016** to allow **service voters** to vote in elections. Under this system, **registered service voters** are sent **postal ballots electronically**, which they can **download and mark their votes**.

They then send the ballot to the **returning officer** of the constituency via **ordinary mail**, along with **an attested declaration form** signed in the presence of an **appointed senior officer**.

The postal ballot must reach the **returning officer** by 8 a.m. on the day of the counting of **results**. For NRI voters seeking to vote through ETPBS, they will need to **inform the returning officer** at least five days after the **notification of the election**.

## Electronically Transmitted Postal Ballot System for NRIs

Currently, this facility is only available to certain categories of voters, including members of the armed forces, central armed police forces, Indian embassies, diplomatic missions, media persons, voters above 80 years of age or with disabilities, and voters under preventive detention.

Service Voters

Currently, NRIs or overseas Indian voters can register as overseas electors with the Election Commission of India (ECI) if they haven't acquired citizenship in another country.

To vote, an NRI must reside in a constituency and provide their passport as proof of identity at a polling station. The right to vote for NRIs was introduced in 2011 through an amendment to the Representation of the People Act 1950.

## Sagar Samridhi → data of dredging

Ministry of Ports, Shipping & Waterways (MoPSW) launched 'SAGAR SAMRIDDHI'

It is the online dredging monitoring system - in order to accelerate 'Waste to Wealth' initiative of the Ministry

This system has been developed by National Technology Centre for Ports, Waterways and Coasts (NTCPWC) the technological arm of MoPSW.

The system will bring in synergy among multiple input reports like daily dredging report, the pre and post dredging survey data before processing and producing real time dredging report.

The 'Sagar Samriddhi' monitoring system will also allow Daily and monthly progress Visualisation, Dredger performance and downtime monitoring, easy location track data with snapshot of loading, unloading and idle time

## Species in News: Great Indian Bustard, Asiatic Lion

### Great Indian Bustard:

A three-judge Bench headed by Chief Justice of India D.Y. Chandrachud said the government had to come out with a plan which would save the bird species from extinction largely due to collision with high transmission power lines situated in areas in Gujarat and Rajasthan, which also happen to be the natural habitat of the bustards.

**Habitat:** Western & Central India, Eastern Pakistan

**Favours-** arid & Semi arid grasslands, It avoids irrigated area

Endemic to Indian subcontinent

**State Bird of Rajasthan**

Under Species Recovery program under the Integrated Development of Wildlife Habitats

## Species in News: Great Indian Bustard, Asiatic Lion

The GIB population in India had fallen to just 150. Of them 128 birds were in Rajasthan, 10 in Kutch district of Gujarat and a few in Maharashtra, Karnataka and Andhra Pradesh. Pakistan is also believed to host a few GIBs.

**Major Threat: Power transmission Lines →**  
GIB has poor frontal vision, they can't detect powerlines in time and their weight make in-flight quick manoeuvres very difficult → So they often collide with Power Transmission Line.



firefly bird divers

## Species in News: Great Indian Bustard, Asiatic Lion

Initiative: Firefly bird diverters are flaps installed on power lines. They work as reflectors for bird species like the GIB. Birds can spot them from a distance of about 50 meters and change their path of flight to avoid collision with power lines. Smaller birds can change their direction [swiftly] but for larger bird species, it is difficult because their body weight and other factors

**Conservation Status:**

**IUCN:** Critically Endangered

**WPA:** Schedule I / IV

**CITES-** Appendix I

**CMS:** Appendix I

## Species in News: Great Indian Bustard, Asiatic Lion

### Asiatic Lion

Habitat- Found only in Gir forest

Asiatic lions were once distributed upto the state of West Bengal in east and Rewa in Madhya Pradesh, in central India

Difference b/w asiatic & african lion- Slightly smaller than African, a longitudinal fold of skin running along its belly

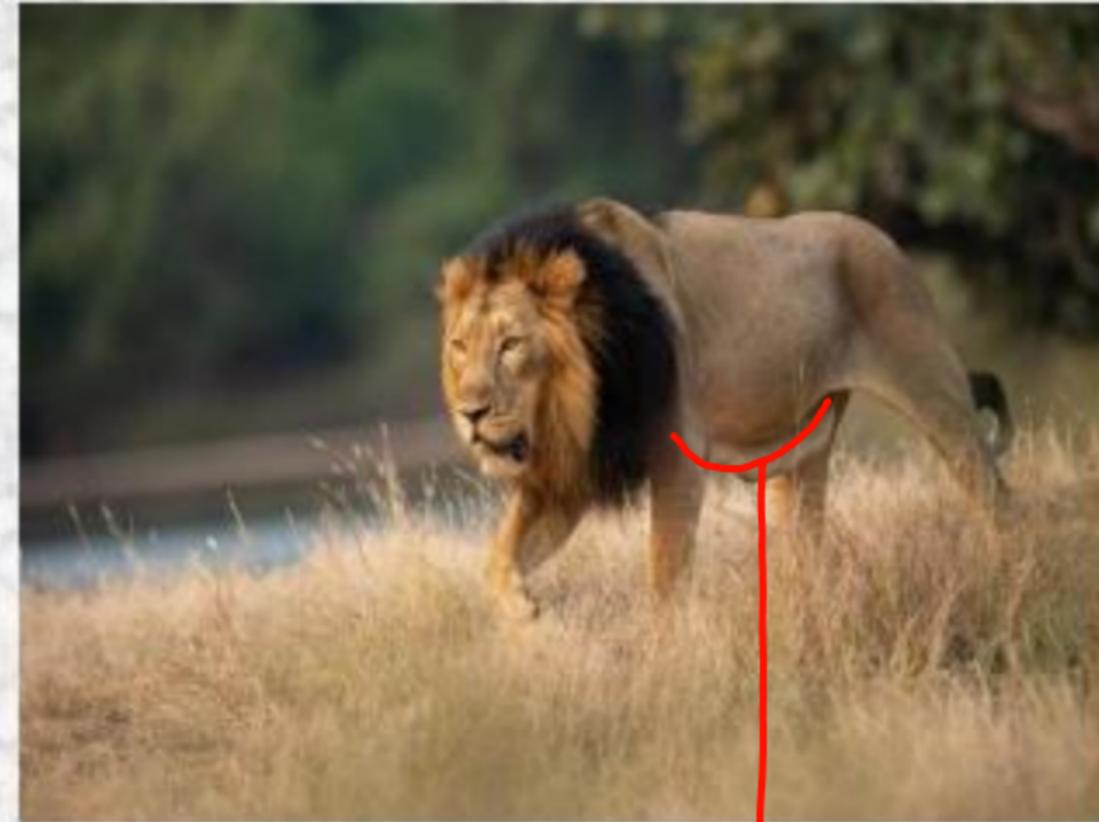
Around 675 lions are there

### Conservation Status:

IUCN- Endangered

WPA- Schedule 1

CITES- Appendix 1



White



# KHAN GLOBAL STUDIES

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**THANKS FOR WATCHING**

