

ENVIRONMENT

PRE-CONTEXT

TOXINS OF BHOPAL DISASTER

THE HINDU, PG.NO: 14.

News: "Incineration of Bhopal waste will not cause harm: M.P. CM?"

Context: Forty years after the Bhopal disaster on December 2-3, 1984, Chemical waste weighing 337 tonnes from the factory premises, was transported to Pithampur, an industrial town 35 km from Indore, for disposal at an incineration facility.

• **Toxins:**

- **Methylisocyanate (MIC):** doesn't have a particular smell at lower concentrations at which other gases may become noticeable but it *can irritate the eyes*.
- **Arsenic, Chromium, Nickel:** cancers of the urinary bladder and lungs etc.
- **Mercury:** Mercury has been known to damage multiple organs even at low concentrations.
- **Persistent Organic Pollutants(POPs):** refer to organic compounds that don't break down easily, cancer, allergies and hypersensitivity, damage

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TECHNOLOGY

PRE-CONTEXT

HYDROGEL

THE HINDU, PG.NO: 16.

News: "Indian researchers develop injectable hydrogel for targeted cancer treatment."

About Hydrogel:

- Hydrogels are *water-based, polymer networks* capable of absorbing and retaining fluids.
- Their *unique structure mimics living tissues*, making them suitable for *bio-medical applications*.
 - The hydrogel, composed of ultra-short peptides is designed to *remain insoluble in biological fluids ensuring it stays localised at the injection site*.
 - *Localised cancer treatment, Tissue engineering, contact lenses etc*
- **Applications in other fields:**
 - **Agriculture:** Soil moisture retention, controlled release of fertilisers etc.
 - **Environment:** water purification, oil spill remediation.
 - **Consumer products:** Cosmetics, smart packaging (humidity absorption) etc.
 - **Electronics:** Biosensors, Bio-printing, flexible electronics etc.

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GS III

SYLLABUS: E-TECHNOLOGY IN THE AID OF FARMERS..

GM-CROPS

THE HINDU, PG.NO: 16.

News: "Experts on GM crop panels to declare conflict of interest."

Context: MoF&CC has amended the rules governing the selection of experts to the Genetic Engineering Appraisal Committee (GEAC). Under the new rules, an "expert member" ought to disclose their "interest" that could conflict with their duties. The expert is also expected to take all steps necessary to ensure that any conflict of interest does not affect any decision of the GEAC.

About GM-Crops:

- **GM Crops:** Plants altered through genetic engineering to introduce desirable traits like *pest resistance, herbicide tolerance, improved nutrition, or enhanced yield*.
- **Gene editing technologies** like CRISPR-Cas9 are used to alter the genes.
- **GM-crops approved in India:** *Bt cotton, Mustard (DMH-11)*.
- **Genetic Engineering Appraisal Committee (GEAC):** Apex body under (MoE&FCC responsible for approving GM crop trials and commercial release.

Need for GM crops in India:

- **Growing population:** India is the world's most populous country.
- **Yield Stagnation:** rice and wheat yields have grown at less than 1% annually over the past decade — *Ministry of Agriculture report 2020*.
- **Bt Cotton Success:** Bt cotton has led to yield increases of up to 50% in India — *ICAR 2017*.
- GM crops engineered for pest resistance reduce crop losses.
- India imports 60-70% of its edible oil needs — *Economic Survey 2021*.
- GM crops can be engineered to tolerate drought, salinity, and extreme temperatures.
- **Farmers adopting Bt cotton** have seen 50-70% income gains due to higher yields and reduced pesticide costs.
- **Deforestation to plant more crops** to increase production can be checked by GM crops (increases the yield).
- **Overuse of fertilisers & pesticides** leads to contamination of Indian soils and groundwater.

Concerns associated:

- Potential introduction of *new allergens or toxins*.
- **Overuse:** pink bollworm resistance to Bt cotton has been reported — *ICAR 2018*.
- **Effects on beneficial insects** like pollinators are a concern.
- **Seed Monopolies** can affect farmer autonomy.
- **Patents on GM seeds** can restrict farmers from saving and reusing seeds — *National Farmers Union 2019*.
- **Skepticism towards GM foods** can affect market acceptance.

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ECONOMY

PRE-CONTEXT

INFLATION

THE HINDU, PG.NO: 17.

News: "Government constitutes panel to rejig the Wholesale Price Index."

Context: Centre on announced the formation of an expert panel to revise the constituents of the country's Wholesale Price Index (WPI) in light of the structural changes in the economy that have occurred between 2011-12, the current base year for the critical price gauge, and **2022-23 that would be the new base year.**

Inflation:

- **A rise in general level of prices.**
 - **Note:** If the price of one good has gone up, it is not inflation.
- **Inflation** = $\frac{\text{current period price index} - \text{last period price index}}{\text{last period price index}} \times 100$

Measuring Inflation:

- **Wholesale Price Index (WPI):**
 - Measures inflation at wholesale level, used for **macro level policy making.**
 - **Current base year** for WPI calculation is **2011-12.**
 - **Weights (High to Low):** Manufactured goods, WPI food, Primary Articles, Fuel and Power.
 - WPI serves as an important determinant in policy formulation of trade, economical and fiscal policies of Govt.
 - **WPI index data is published by Office of Economic Advisor** under **Ministry of Commerce and Industry.**
- **Consumer Price Index (CPI):**
 - Also called **Retail Inflation.**
 - CPI **measures the average change in prices of fixed basket of goods and services** that households purchase for purpose of consumption.
 - Used for **inflation targeting and micro-level policy making.**
 - **Current base year** for CPI calculation is **2011-12.**
 - **Weights (High to Low):** Food and Beverages, Services, Fuel and Light etc.
 - **CPI is released by CSO** under Ministry of Statistics and Program Implementation.

Core inflation:

- Some goods & services are either included or excluded during calculation of core inflation.
- It **excludes food, fuel & light, transport & communication.**

Base Effect:

- Nothing to do with base year.
- **Shows the impact of the rise in price level in the previous year over the current year.**
- **Formula:** $\frac{\text{Current inflation rate} - \text{Last year price index}}{\text{last year price index}} \times 100$

GDP Deflator:

- Measures GDP at **current prices** to that of the constant prices.
- Provides **comprehensive view** compared to inflation indicators.
- **Phillips Curve:** shows relationship between Inflation & unemployment.

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ECONOMY

PRE-CONTEXT

PURCHASING MANAGERS INDEX

THE HINDU, PG.NO: 17.

News: "Factory activity at 12-month low."

Purchasing Managers Index (PMI):

- Released by **S&P Global.**
- Measures the **health of manufacturing and services** sectors in an economy.
- It **measures the activity at the purchasing or input stage.**
- It **does not capture informal sector** activity.
- **PMIs above 50** mean industries are expanding, **less than 50 means contracting.**
 - Manufacturing PMI dropped to 56.4 last month, from 56.5 in November 2024.

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SPORTS

PRE-CONTEXT

DHYAN CHAND KHEL RATNA

THE HINDU, PG.NO: 20.

News: "Manu Bhaker gets the govt.'s nod for the Dhyan Chand Khel Ratna."

About Dhyan Chand Khel Ratna:

- The Rajiv Gandhi Khel Ratna Award, instituted in 1991-92, was **renamed the Dhyan Chand Khel Ratna Award** in August 2021 to honor Major Dhyan Chand, a **legendary Indian hockey player.**
- The award is **granted only once** to each athlete.
- **Selection criteria and policies** established by the **Ministry of Youth Affairs and Sports**
- **Eligibility:**
 - The award considers the performance of athletes over the **preceding four years.**
 - **Athletes must have demonstrated exceptional performance in international competitions** such as the Olympic Games, World Championships, and other International events.
 - **Both individual and team sportspersons are eligible**
- **Award components:** Medallion, Certificate, Rs.25 lakh cash prize.
- **Notable recipients:**
 - **Neeraj Chopra: (Javelin Throw):** Notable for winning a gold medal at the Tokyo 2020 **Olympics.**
 - **PV Sindhu (Badminton):** Renowned for her achievements in World Championships and the **Olympics.**
 - **Mary Kom (Boxing):** Multiple world championships and an **Olympic** bronze medal.

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