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National Pest Surveillance System (NPSS)

The Union Agriculture and Farmers Welfare Minister recently launched the National Pest Surveillance System (NPSS).

- **NPSS-** It is an ***AI-based system*** aimed at helping farmers ***manage pests*** by connecting them with agriculture scientists and experts through mobile phones.
- The system includes a user-friendly ***mobile app and web portal*** for all farmers.
- **Aim-** It is designed to reduce farmers' dependence on pesticide retailers and promote a scientific approach to pest management.
- **Objective-** Through NPPS, farmers can learn about various ***insecticides and pesticides to protect their crops*** from harmful effects.
- **Real-time monitoring-** Using ***real-time data and advanced analytics,*** NPSS ensures accurate pest identification, monitoring, and management.
- The NPSS platform used Information and Communication Technology (ICT).
- **Functionality-** Farmers can snap photos of infested crops or insects using their phones and send them to experts for instant analysis and advice using the NPSS.
- **Significance-** The launch of NPSS is a major step in modernizing Indian agriculture, boosting food security, and promoting sustainable farming practices.
- The NPSS system aims to deliver fast, accurate pest identification and control, ensuring the right number of pesticides is used at the right time.
- This increases productivity, reduces pesticide overuse, and preserves soil health.

References

1. The Hindu | National Pest Surveillance System
2. News on Air | National Pest Surveillance System

Microbial biosurfactants

Recent research has analyzed the potential of biosurfactants in the food industry.

- **Biosurfactants-** These are ***surface-active substances*** produced by microorganisms.

  Surface active agents (SAAs) are molecules with the capacity to adsorb to solid surfaces and/or fluid interfaces, a property that allows them to act as multifunctional ingredients.

- This serves as a ***healthier substitute for synthetic surfactants*** in the food industry.
- They are produced using ***green substrates*** from agro-industrial waste.

Types of Biosurfactants	
Glycolipids	Include rhamnolipids, sophorolipids, and trehalolipids, commonly used for their emulsifying properties.
Lipopeptides	Such as surfactin and iturin, known for their strong surface activity and antimicrobial properties.
Phospholipids and Fatty Acids	Derived from microbial sources, useful in food and cosmetic industries.
Polymeric Biosurfactants	Including emulsan and liposan, these are effective in stabilizing emulsions

- **Finding of the study**- The study on biosurfactants in the food industry highlights the need for more research on their ***toxicity, dose effects, and interactions*** with other food components to secure regulatory approvals.
- The Cost-effective biosurfactants derived from agro-industrial waste offer a sustainable and healthier alternative to synthetic surfactants in the food industry.
- **Technological Advancements-** The study explores the use of genetic engineering, recombinant DNA technologies, and nanotechnology to enhance biosurfactant production.
- It also calls for collaboration between researchers and industrialists to improve production techniques and expand the market for biosurfactants.
- They help emulsify fats, improve shelf life, act as dispersing agents, retain moisture, used to remove heavy metals from vegetables, boost immunity

in fish, and serve as natural antioxidants.
- **Health and Environmental Benefits-** Unlike synthetic surfactants, biosurfactants are ***eco-friendly, non-toxic***, and safe for human consumption.
- They do not cause adverse effects like imbalances in the gut microbiome or intestinal disorders.

References

1. PIB | Biosurfactants
2. NCBI | Surface Active Agents

Wholesale Price Index (WPI), July 2024

Recently Index Numbers of Wholesale Price in India for July, 2024 has been released.

- **Wholesale Price Index (WPI)** – It is a measure of changes in the prices of goods sold and traded in bulk by wholesale businesses to other businesses.
- **Components of WPI** - WPI is calculated by taking a weighted average of prices in a basket of goods.

WPI Components	
Commodity Group	**Weightage (%)**
Primary Articles	22.62
Fuel & Power	13.15
Manufactured Products	64.23

- **WPI Released by** - Office of Economic Adviser
  - **Department** - Department for Promotion of Industry and Internal Trade DPIIT
  - **Nodal Ministry** - Ministry of Commerce and Industry.
- DPIIT releases the index number of wholesale prices in India on monthly basis on the *14th of every month* (or the next working day) with a *time lag of two weeks* of the reference month.
- **Consumer Price Index (CPI) released by** - National Statistical Office (NSO), Ministry of Statistics and Programme Implementation.
- Annual Rate of WPI inflation in July 2024 over July 2023 - **2.04%(Provisional).**
- Annual rate of inflation change for the last three months.

Index Numbers and Annual Rate of Inflation (Y-o-Y in %)*							
All Commodities/Major Groups	Weight (%)	May-24		June-24 (P)		July-24 (P)	
		Index	Inflation	Index	Inflation	Index	Inflation
All Commodities	100.00	153.5	2.74	153.9	3.36	155.2	2.04
I. Primary Articles	22.62	188.1	7.42	191.6	8.80	197.6	3.08
II. Fuel & Power	13.15	150.1	1.01	147.7	1.03	147.9	1.72
III. Manufactured Products	64.23	142.0	1.00	141.9	1.43	141.7	1.58
Food Index	24.38	186.3	7.75	190.3	8.68	195.4	3.55

- Monthly WPI change in July 2024 over June 2024 - ***0.84%.***
- Monthly change of WPI inflation for last three months.

Month Over Month (M-o-M in %) change in WPI Index#							
All Commodities/Major Groups	Weight	Feb-24	Mar-24	Apr-24	May-24	Jun-24 (P)	Jul-24 (P)
All Commodities	100.00	0.00	0.13	0.99	0.39	0.26	0.84
I. Primary Articles	22.62	0.06	0.94	2.13	0.53	1.86	3.13
II. Fuel & Power	13.15	0.00	-1.81	-0.46	-0.86	-1.60	0.14
III. Manufactured Products	64.23	0.07	0.21	0.79	0.57	-0.07	-0.14
Food Index	24.38	0.17	1.12	2.33	0.92	2.15	2.68

- **Major reason for Increase in Inflation in July** - Increase in prices of food articles, manufacture of food products, mineral oils, crude petroleum & natural gas, other manufacturing etc.
- **WPI Food Index (Weight 24.38%)** – It measures the movement of wholesale prices of food articles.
- It consisting of 'food articles' from primary articles group and 'food product' from manufactured products group.
- The rate of inflation (Y-o-Y) based on WPI Food Index decreased from 8.68% in June, 2024 to 3.55% in July, 2024.

References

1. PIB | WPI Index
2. IndianExpress | WPI Inflation

Ramsar sites

Recently, 3 new wetlands have got the Ramsar site tag taking the total tally of Ramsar wetlands to 85 in India.

- **Wetlands**- Under the Ramsar Convention, a wetland is ***any land saturated or flooded with water***, either seasonally or permanently.
- Inland wetlands include lakes, rivers, marshes, and ponds, while coastal wetlands cover mangroves, estuaries, and coral reefs.
- Wetlands are referred to as the ***"Kidneys of the Earth"***
- The ***Wetlands (Conservation and Management) Rules, 2017*** excludes river channels, paddy fields, and other areas where commercial activity takes place.

Ramsar Convention

- It is an ***intergovernmental treaty*** focused on conserving and wisely using wetlands.
- It is the only international agreement dedicated to protecting a single ecosystem.
- **Members**- 172 member countries.
- **Framed**: Ramsar, Iran, 1971.
- **India's membership**: India became a signatory to the convention in 1982.
- **Objectives**-
  - Wise use of all their wetlands
  - Designating sites for the Ramsar List of "Wetlands of International Importance" (Ramsar Sites) and their conservation
  - Cooperating on transboundary wetlands and other shared interests
- **India's Contribution to Ramsar Sites**
  - **Total Sites-** 85
  - **States with Most Ramsar Sites**: Tamil Nadu (18 sites), Uttar Pradesh (10 sites).
  - **Largest site**- Sundarbans is the largest Ramsar Site of India.
  - **Total area**- 1358067.757 ha in the country.
- **Montreux Record**- The register lists Ramsar wetland sites where ecological changes have occurred, are occurring, or are likely due to technology, pollution, or human activity.

New additions

- The 3 new sites included are
  - Nanjarayan Bird Sanctuary in Tamil Nadu
  - Kazhuveli Bird Sanctuary in Tamil Nadu and
  - Tawa Reservoir in Madhya Pradesh.
- **Nanjarayan Lake**

    - **Location-** Tiruppur district, Tamil Nadu.
    - **Type-** Large shallow wetland.
    - **Weather Dependency-** Relies on heavy rainfall from Nallar drainage.
    - **Biodiversity-** Hosts 191 bird species, 87 butterfly species, 7 amphibian species, 21 reptile species, 11 small mammal species, and 77 plant species.
    - **Ecological Importance-** Feeding and nesting habitat for resident and migratory birds; significant for agriculture.
- **Kazhuveli Bird Sanctuary**
    - **Location-** Villupuram district, Tamil Nadu.
    - **Type-** Brackish shallow lake.
    - **Ecological Importance-** Key stopover for migratory birds on the Central Asian Flyway; breeding ground for resident species.
    - **Connectivity-** Linked to Bay of Bengal via Uppukalli creek and Edayanthittu Estuary.
- **Tawa Reservoir**
    - **Location-** At the confluence of Tawa and Denwa rivers in Satpura Tiger Reserve in Madhya Pradesh.
    - **Ecological Importance-** Habitat for rare and endangered species, birds, and wild animals; vital for aquatic flora and fauna.
    - **Biodiversity-** Important habitat for local and migratory birds.

References

1. PIB | Three new sites added to Ramsar
2. Ramsar | The Ramsar Convention

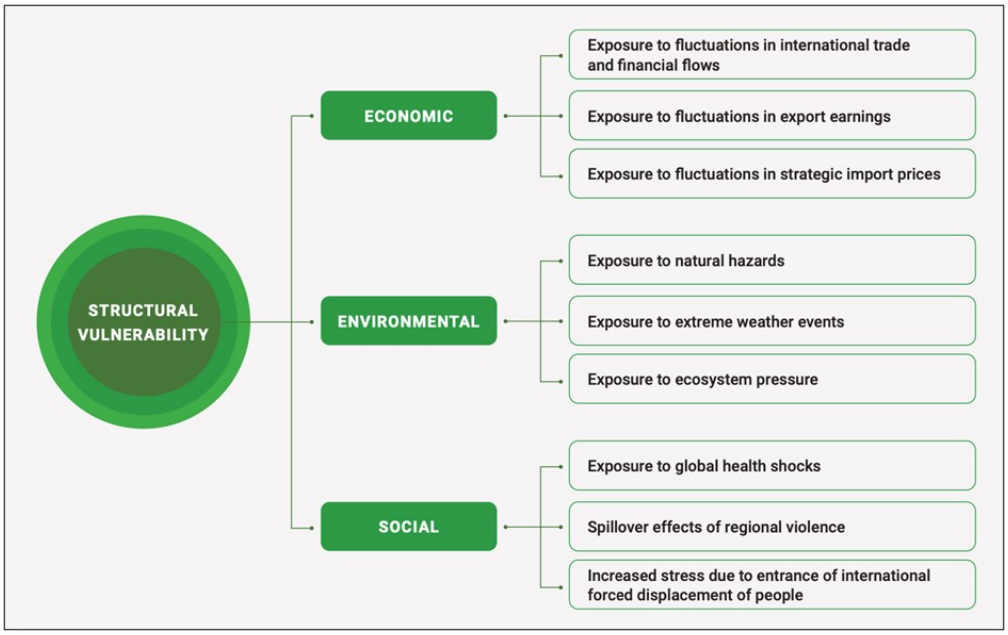
Multidimensional Vulnerability Index

The UN General Assembly has recently introduced a new "vulnerability" index to help small island and developing nations access low-interest financing.

- **MVI**- It is a framework developed to assess the vulnerabilities faced by Small Island Developing States (SIDS).
- It is designed to complement traditional metrics like Gross Domestic Product (GDP) to better assess development and vulnerabilities.
- **Agency**- United Nations.
- **Aim**- It aims to provide a more nuanced understanding of the structural challenges these nations encounter, particularly in the context of global

crises such as climate change, economic instability, and health emergencies.

- **Launch**- The MVI was officially launched during the 2023 Annual Meetings of the World Bank and the International Monetary Fund, following extensive advocacy from the Alliance of Small Island States (AOSIS) and the UN.
- **Background**- Historically, SIDS has struggled with traditional measures like Gross National Income (GNI) per capita, which do not adequately capture their unique vulnerabilities.
- **Purpose**- The MVI was proposed to address this gap by considering multiple dimensions of vulnerability economic, environmental, and social rather than relying solely on income metrics.
- This shift is crucial for improving access to concessional financing and support for sustainable development initiatives.
- **Indicators**



  - **Structural Vulnerabilities-** Includes import dependency, exposure to extreme weather, and pandemics.
  - **Economic and Environmental Resilience-** Assesses impacts of regional violence, refugee crises, demographic pressures, and resource availability (water, arable land).
  - **Social Indicators-** Child mortality rates.
- **Implication**- The MVI is expected to enhance the allocation of international development finance, ensuring that resources are directed towards the most vulnerable nations.

References

1. The Hindu | Multidimensional Vulnerability Index
2. United Nations | Multidimensional Vulnerability Index

