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The Road Map to Mussoorie...



PRELIMS EDGE – 2025 – 01/10/2024

Index of Core Industries

Context: Output level in core sectors slipped to a 9-month low in August, and year-on-year growth slipped 1.8%, marking the first contraction in three and a half years.

About Core Industries in India:

- The core sector in India comprises **eight key industries**.
- Growth rate of core sector is a **crucial indicator of the overall health of the Indian economy**. A strong growth rate in the core sector often signals a positive economic outlook.
- The **Index of Eight Core Industries (ICI)** is prepared every month and released by the **Dept. for Promotion of Industry & Internal Trade (DPIIT)**, Ministry of Commerce & Industry.
- ICI comprises various components that collectively reflect performance and vitality of India's industrial sector. These components include:
 - **Coal production**, excluding Coking coal.
 - **Electricity** from thermal, nuclear, and hydro sources & imports from Bhutan.
 - Total **crude oil** production.
 - **Cement production** in both large plants and mini plants.
 - Total production of **natural gas**.
 - Production of **alloy and non-alloy steel**.
 - Total **refinery production**.



- **Fertiliser:** Production of urea, ammonium sulphate, calcium ammonium nitrate, single superphosphate, among others.
- The current weightage in ICI is Refinery Products (28.04%) > Electricity (19.85%) > Steel (17.92%) > Coal (10.33%) > Crude Oil (8.98%) > Natural Gas (6.88%) > Cement (5.37%) > Fertiliser (2.63%).
- Choice of base year of ICI is according to the choice of **base year for the Index of Industrial Production (IIP)**. The base year in the current series of ICI and IIP is **2011-12**.
- IIP helps in measuring the growth rates in different industry groups of the economy in a fixed period.
 - It is a composite index that shows short-term changes in production volume of a basket of industries compared to a chosen base period.
- ICI comprises **40.27% of the weight of items included in the IIP**.

Source: For the first time in 42 months, core sectors' output tanked in August (The Hindu)

Nuclear Power in India

Context: Today's editorial in The Hindu analyzes the opportunities and challenges of the proposed private sector involvement in India's nuclear energy sector.

Nuclear Power in India:

- It's the **6th largest source** of electricity in India, contributing about **2% of India's total electricity generation**. India currently has 22 nuclear reactors in 7 power plants, which together produce **6.78 GW of power**.
- Of these reactors, **18 are Pressurized Heavy Water Reactors (PHWRs) and 4 are Light Water Reactors (LWRs)**.
- In January 2021, the Kakrapar Atomic Power Project (KAPP-3), India's first 700 MWe unit and the biggest indigenously developed variant of the PHWR, was connected to the grid.
- Union govt has allowed joint ventures between **Nuclear Power Corp. of India Ltd. (NPCIL) and PSUs**. NPCIL has joint ventures with National Thermal Power Corp. (NTPC) and Indian Oil Corp. Ltd. (IOCL).



- Govt is **aiding expansion of nuclear installations to new parts** of the country. For example, an upcoming plant in Gorakhpur (Haryana).
- India is also working on an entirely **indigenous thorium-based nuclear plant, "Bhavni,"** which will be the first of its kind using Uranium-233.
- **Experimental thorium plant 'Kamini'** already exists in Kalpakkam.
- The **upcoming nuclear power plant in Jaitapur (Maharashtra) would be world's most powerful** nuclear power plant with 6 state-of-the-art Evolutionary Power Reactors (EPRs).
- India aims to increase nuclear power capacity from to **22.4 GW by 2031.**
- Functioning of all nuclear power related facilities in India is governed by the **Atomic Energy Act of 1961.**

Bharat Small Reactors:

- In the 2024 Union Budget, the govt. announced that it will **partner with the private sector to develop Bharat Small Reactors (BSRs).**
- BSRs are a **type of Small Modular Reactor (SMR)** designed for India's energy needs. These reactors are compact, factory-built reactors with a **power capacity of up to 300 MW.**
- They aim to provide a safe, cost-effective, and low-carbon energy source, particularly suitable for locations that cannot accommodate larger nuclear plants.
- Development of BSRs involves collaboration of Union Govt and the private sector. This marks a historic shift in India's nuclear policy, as **Atomic Energy Act, 1962 previously barred private sector participation.**
- BSRs, aligned with global trends in SMRs, are based on India's existing PHWR technology.

About Nuclear Energy:

- ✓ Nuclear energy is the energy released from the nucleus, or core, of atoms.
- ✓ It has high energy density, meaning that a small amount of nuclear fuel can produce a large amount of energy.
- ✓ There are two primary methods of harnessing nuclear energy:

- **Nuclear Fission:** This is the process of splitting the nucleus of an atom into two smaller nuclei, releasing a large amount of energy in the process.
- **Nuclear Fusion:** This is the process of combining the nuclei of two light atoms to form a heavier nucleus. This process powers the sun and other stars.

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💡 Nuclear power, along with hydrogen energy, were identified as key to India's Long Term Low Carbon Development Strategy (LT-LCDS) which was presented at COP 27 in Egypt (2022).

Source: Having private participation in India's nuclear energy (The Hindu)

Rashtriya Vigyan Puraskar

Context: There have been multiple allegations of politicization of the recently announced RVP (Rashtriya Vigyan Puraskar) awards.



About Rashtriya Vigyan Puraskar:

- It is a new set of awards introduced by the Government of India in the **fields of Science, Technology, and Innovation.**
- Objective: To recognize the notable and inspiring contributions made by scientists, technologists, and innovators **individually or in teams in various fields of science, technology, and technologically innovation.**
- It is one of the highest recognitions in the field of science, technology, and innovation in India.

Eligibility:

- Scientists/ technologists/innovators working in **govt, private organizations, or any individual working outside any organization** who have made **distinguished contributions** in terms of path-breaking research, innovation, or discovery in any field of **science, technology, or technology- led innovation** shall be eligible for the awards.

- **People of Indian origin** staying abroad with contributions benefiting Indian communities or society shall also be eligible for the awards.
- Scientists will be **selected across 13 domains**, namely Physics, Chemistry, Biological Sciences, Mathematics & Computer Science, Earth Science, Medicine, Engineering Sciences, Agricultural Science, Environmental Science, Technology & Innovation, Atomic Energy, Space Science and Technology, and Others.
- The representation from each domain/field, including **gender parity** will be ensured.

Categories of awards:

- **Vigyan Ratna (VR)** award will recognize **lifetime achievements** & contributions made in any field of science and tech.
- **Vigyan Shri (VS)** award will recognize **distinguished contributions** in any field of science and technology.
- **Vigyan Yuva-Shanti Swarup Bhatnagar (VY-SSB)** award will recognize young scientists **below age of 45 years** who made an exceptional contribution in any field of science and technology.
- **Vigyan Team (VT)** award to be given to a team comprising **three or more scientists/researchers/innovators** who have made an exceptional contribution working in a team in any field of science and technology.

Decision and Ceremony:

- All nominations received for RVP are placed before the **Rashtriya Vigyan Puraskar Committee (RVPC)**, headed by the **Principal Scientific Adviser (PSA)** to the Government of India.
- The award ceremony for all categories of awards will be held on **23rd August (National Space Day)**.

Source: New science awards, old political project (The Hindu)

AFSPA, 1958

Context: The Manipur govt. has extended AFSPA in the hill districts of the state for another 6 months.

About Armed Forces Special Powers Act of 1958 (AFSPA):



- It gives armed forces the power to **maintain public order in “disturbed areas”**.
- The **armed forces may use force or even open fire after giving due warning** if they feel a person is in contravention of the law.
- If “reasonable suspicion exists”, armed forces can also **arrest a person without warrant; enter or search premises without a warrant; and ban possession of firearms**.
- Section 4 of the Act grants officers authority to “**take any action**” – can even cause death.
- **Ministry of Home Affairs or the Governor** can declare whole or part of State or UT as a **disturbed area (Section 3)**.
- Union Govt. **permission is needed to take any action against an officer** for alleged violations.
- It applies to **Army, Air Force and Central Paramilitary forces** etc.

Background of AFSPA:

- It is a reincarnation of a British-era law enacted to quell the protests during the Quit India movement.
- After independence, AFSPA was issued via **four ordinances in 1947**.
- The ordinances **were replaced by an Act in 1948**. It was later repealed and the **present law was passed in 1958**.
- AFSPA came into force in the context of **Naga insurgency of the 1950s**.

Current Scenario

- **Assam:** AFSPA remains in force in certain areas in 9 districts
- **Manipur:** AFSPA remains in force in all hill districts.
- **Arunachal Pradesh:** AFSPA remains in only 3 districts and 2 police stations in 1 district.
- **Nagaland:** AFSPA remains in force in 8 districts

- **Tripura, Mizoram and Meghalaya:** AFSPA has been withdrawn completely.
- **Jammu and Kashmir:** AFSPA remains in force throughout the UT.

Source: Manipur government extends AFSPA in hill districts for 6 months (The Hindu)

Terms in News

Silver Dividend

- Silver Dividend refers to the **economic and social benefits that arise from having a large, aging population.**
- As people live longer, healthier lives, many older individuals remain active, contributing to society in various ways, such as working, volunteering, or providing wisdom and experience to younger generations.
- It highlights that older adults are not just a financial burden but can be **valuable to the economy and the community if supported by proper policies.** Countries that invest in healthcare, social services, and opportunities for older adults can unlock this "silver dividend."
- Instead of seeing aging as a problem, the silver dividend emphasizes the **positive opportunities that come with longer, healthier lives.**



Dadasaheb Phalke Award

- Ministry of Information and Broadcasting announced that the **Dadasaheb Phalke Award for 2022 will be accorded to legendary actor Mithun Chakraborty.** The award will be presented at the 70th National Film Award ceremony in New Delhi.
- Dadasaheb Phalke Award is **part of the National Film Awards**, a highly coveted collection of honours in the film industry.
- The Award is **named after Dhundiraj Govind Phalke**, the pioneering filmmaker who gave India its first film– ‘Raja Harishchandra’, in 1913. The award is considered the highest honour in the Indian film fraternity.



- It is awarded for **outstanding contribution to the growth and development of Indian cinema**. It was instituted in 1969, and consists of a ‘Swarna Kamal’, a cash prize of INR 10 lakh, a certificate, a silk roll, and a shawl.
- It is **presented by President of India** in the presence of the Union Minister of Information and Broadcasting.

Places in News

Rwanda

- Rwanda recently confirmed a series of **deaths due to the Marburg virus disease**, which has symptoms similar to the Ebola virus.
- Rwanda is a **landlocked country in Great Rift Valley of Central Africa**, where African Great Lakes region and Southeast Africa converge.
- Located a few degrees south of the Equator, Rwanda is **bordered by Uganda, Tanzania, Burundi, and the Democratic Republic of Congo**.
- 80% of Rwanda drains into Lake Victoria via a series of small rivers while remaining 20% drains into the Congo via the **Rusizi River**.



Practice Questions

Q1. Consider the following nations located in Africa:

1. Sierra Leone
2. Cameroon
3. Rwanda
4. Angola
5. Burundi
6. Zambia
7. Burkina Faso

How many of these nations are located in the Great Rift Valley region of Africa ?

- A. Only three
- B. Only four
- C. Only five
- D. Only six

Q2. Consider the following statements regarding the Index of Eight Core Industries (ICI), often seen in the news:

1. It is published on a monthly basis by the Dept. for Promotion of Industry & Internal Trade (DPIIT).
2. The core industries account for over 40% of weightage under the Index of Industrial Production.
3. Refinery products account for the largest share within the ICI, followed by electricity generation.

Which of the afore mentioned statements are correct ?

- A. 1 and 2
- B. 2 and 3
- C. 1 and 3
- D. 1, 2 and 3

Q3. Consider the following statements regarding the use of nuclear power in India:

1. Most of India's nuclear reactors are Light Water Reactors (LWRs).
2. Nuclear power was identified as key to India's Long Term Low Carbon Development Strategy (LT-LCDS) presented at COP 27 in 2022.
3. Bharat Small Reactors, proposed in the 2024 Budget, seek to attract private finance to enhance deployment of nuclear energy.

How many of the aforementioned statements are correct ?

- A. None of the statements
- B. Only one statement
- C. Only two statements
- D. All three statements

Q4. With respect to the Rashtriya Vigyan Puraskar, consider the following statements:

1. The awards have been instituted under 4 categories.
2. Vigyan Shri award is provided for lifetime achievements and contributions made in any field of science and technology.
3. The Shanti Swarup Bhatnagar Vigyan Yuva award is for contributions by young scientists below the age of 45.

How many of the above statements are correct?

- A. 1 and 2
- B. 1 and 3
- C. 2 and 3
- D. 1, 2 and 3

Q5. Consider the following statements regarding the Armed Forces Special Powers Act of 1958 (AFSPA):

1. The Ministry of Defence can declare whole or part of a State/UT as a “disturbed area” under AFSPA.
2. Paramilitary forces are excluded from the jurisdiction of AFSPA.
3. All North-Eastern states have some or all parts of their territory currently notified under AFSPA.

How many of the above mentioned statements are correct ?

- A. None of the statements
- B. Only one statement
- C. Only two statements
- D. Only three statements

1. A
2. D
3. C
4. B
5. A