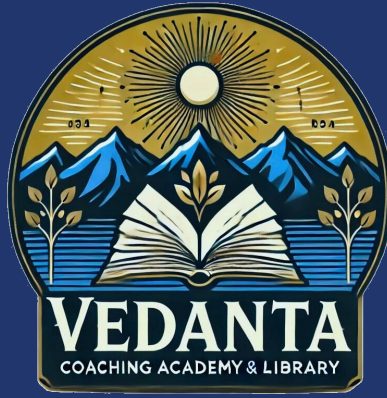




DAILY CURRENT AFFAIRS · UPSC & HPAS/HAS

The Hindu *Analysis*

Thursday · 1 October 2026

IN THIS EDITION

01	SC Rules Out Total Ban on Firecrackers for Deepavali Environment · Pollution	GS 3	2
02	Index of Services Production (ISP): July 2026 Data Economy · Data & Indices	GS 3	3
03	Good Foundation: IIP Growth Hits 8% in August 2026 Economy · Industry	GS 3	5
04	Household Debt: Financing Today Against Tomorrow Economy · Banking & Finance	GS 3	7
05	India–EFTA TEPA at One: One Plus One Equals Three IR · Trade · Energy · Arctic	GS 2, 3	8
★	Practice Zone 2 Mains (with Hindi) · 10 Prelims MCQs · Recap · Trap-Setters · Places & Persons	Test	10

Green Crackers

Index of Services Production

IIP & Core Industries

Household Debt

India–EFTA TEPA

Arctic Council

HOW TO READ EACH STORY

- 1** Why in News
- 2** Analysis
- 3** Clipping
- 4** Value Addition
- 5** Prelims Pointers
- 6** Syllabus Link

Compiled by **Sapna Chauhan**

VEDANTA COACHING ACADEMY & LIBRARY

01 SC Rules Out Total Ban on Firecrackers for Deepavali

Court accepts CSIR-NEERI's case for a "limited and conditional relaxation" built around next-generation joined green crackers

WHY IN NEWS On Wednesday (30 September 2026), a Bench headed by **Justice M.M. Sundresh** refused a nationwide ban on firecrackers and backed CSIR-NEERI's recommendations for the manufacture of **next-generation joined green crackers** ahead of Deepavali, while mulling fixed time windows for bursting.

- **Balanced view:** "Total ban will hurt certain sentiments" — but the court also ruled out **24-hour bursting** anywhere, citing harm to the sick, the elderly and children, especially with winter-onset air pollution.
- **Conditions proposed (via ASG Aishwarya Bhati):** crackers must follow formulations tested and approved by the competent authority and be made **only by duly-licensed manufacturers**.
- **Noise ceiling:** 125 dB(AI) / 145 dB(C) peak, and crackers must strictly fall within permissible **emission brackets**; free of banned chemicals such as **barium**.
- **What testing showed:** **~30% lower emissions** than conventional joined crackers; smaller shells cut **solid waste by 4% to 32%**; bursting duration rose **five-fold**.
- **Next steps:** CPCB and the Union government given more time to complete further barium and joined-cracker tests, including decibel-level checks; court to consider directing specific bursting slots.
- **Constitutional balance:** Article 21 (right to clean air & health) vs Article 19(1)(g) (trade of licensed manufacturers) and cultural/religious sentiment around the festival.

VALUE ADDITION — GREEN CRACKERS AT A GLANCE

Developed by: CSIR-National Environmental Engineering Research Institute (NEERI), Nagpur — a CSIR laboratory. Range covers flower pots, pencils, chakkar, maroons and bombs.

Why "green": ~30% less particulate emission; little or no **barium nitrate** (the oxidiser behind green colour and much of the smoke); noise of about **110–125 dB** against ~160 dB for conventional crackers.

Variant	Full form	Distinct feature
SWAS	Safe Water Releaser	Releases water vapour that suppresses dust; no sulphur or potassium nitrate; ~30% less particulate dust
STAR	Safe Thermite Cracker	No sulphur or potassium nitrate; less particulate matter; lower noise
SAFAL	Safe Minimal Aluminium	Minimal aluminium; less particulate matter; lower noise than traditional crackers

Joined (series) crackers: many crackers strung together and fired in sequence (e.g. *ladis*). In *Arjun Gopal v. Union of India* (2018), the SC permitted only reduced-emission/green crackers and barred joined crackers — today's ruling opens the door to a re-engineered, tested version.

SC rules out total ban on firecrackers for Deepavali

Court sees worth in CSIR-NEERI report on new-generation joined green crackers with lower noise, particulate emissions, and solid waste generation; Bench mulls specific time windows for bursting

Krishnadas Rajagopal
NEW DELHI

Ruling out a nationwide ban on firecrackers, the Supreme Court on Wednesday accepted suggestions by the Council of Scientific and Industrial Research-National Environmental Engineering Research Institute (CSIR-NEERI) for a “limited and conditional relaxation”.

The court backed the premier scientific body’s recommendations for manufacture of next-generation joined green crackers in compliance with applicable noise, emission, and safety requirements ahead of Deepavali festivities.

Appearing before a Bench headed by Justice M.M. Sundresh, Additional Solicitor-General Aishwarya Bhati, for the Centre, said CSIR-NEERI has recommended that green crackers conform to specifications/formulations tested and approved by the competent authority and are made exclusively by duly-licensed manufacturers.



The court says it will take a balanced view, particularly over anxiety of air pollution with the onset of winter. SUSHIL KUMAR VERMA

CSIR-NEERI has suggested that crackers must be within the prescribed noise limit of 125 dB (AI)/145 dB(C) peak and strictly fall within permissible emission brackets, Ms. Bhati said.

The law officer submitted that CSIR-NEERI has prescribed the shell size, shell number and bursting duration/time of green crackers, which showed less noise and emissions than conventional joined crackers. The scientific report underscored that these crackers should be free of banned chemical ingredients.

The CSIR-NEERI report

on the “new-generation joined firecrackers” said a series of the green variety had been developed without the use of barium in their compositions. These crackers were different from the conventional ones in terms of shell/tube size, formulation, bursting duration, and frequency of bursting, with corresponding reductions in noise, particulate emissions and solid waste generation, the report said.

30% reduction

Tests conducted on them show a 30% reduction in emissions compared to conventional joined crack-

ers. The shrinking of the shell size has also reduced solid waste generation from 4% up to 32%, the report said.

“The bursting time duration has increased five times in the next-generation joined green crackers,” the report noted.

The court said it would take a balanced view on the issue of firecrackers, particularly with apprehensions of air pollution with the onset of winter and the festive season.

“Total ban will hurt certain sentiments. We will not agree on a total ban across the country. At the same time, we will not allow a 24-hour bursting anywhere, as it affects the sick, the elderly, and children,” the Bench remarked orally.

The court said it would look into directing specific time windows for bursting crackers.

The court gave more time to the Central Pollution Control Board and the Union government to continue with further barium and joined firecracker tests to test decibel levels.

Source clipping — The Hindu, Page 12

PRELIMS POINTERS

- Firecracker noise standard (Environment Protection Rules, 1986): **125 dB(AI) or 145 dB(C)pk** at 4 m from the bursting point.
- Licensing of explosives & fireworks: **PESO** (Petroleum and Explosives Safety Organisation) under the Explosives Rules, 2008.
- Green crackers carry the CSIR-NEERI green logo and a QR code for verification.

SYLLABUS LINK GS 3 — Environmental pollution & degradation; GS 2 — Judiciary and fundamental rights.

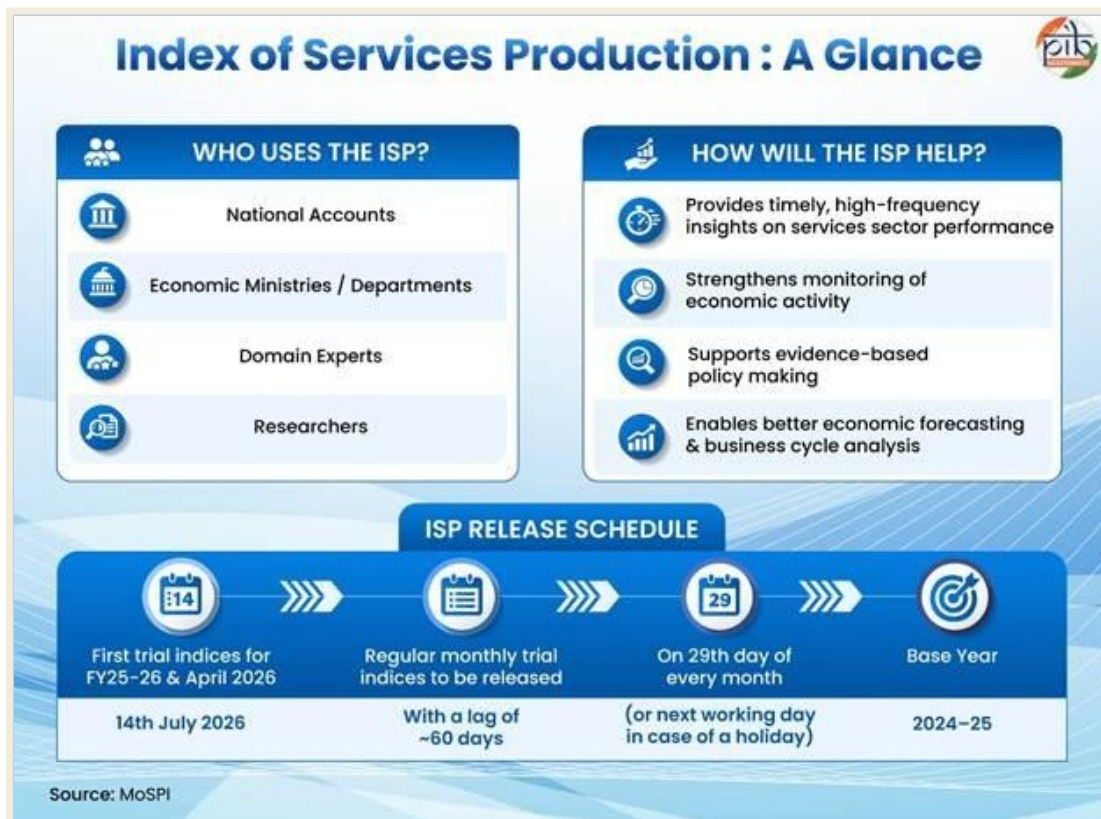


GS 3 ECONOMY · DATA & INDICES MOSPI / PIB

02 Index of Services Production (ISP): July 2026 Data

A new high-frequency index fills the long-standing data gap for India's largest sector

WHY IN NEWS The Ministry of Statistics & Programme Implementation (**MoSPI**) released the Index of Services Production for **July 2026**, covering **19 services sub-sectors** with **2024-25 as the base year**.



ISP: A Glance — Source: MoSPI (via PIB)

- **Top performers (July 2026, y-o-y):** Administrative & support services **20.9%**, Retail trade **18.5%**, Real estate **14.4%**, Accommodation & food **12.6%**, Banking **12.3%**.
- **Release cycle:** first trial indices for FY 2025-26 and April 2026 came out on **14 July 2026**; monthly trial indices follow with a lag of about **60 days**, on the **29th of every month** (next working day if a holiday).
- **Users:** National Accounts compilers, economic ministries and departments, domain experts and researchers.
- **Why it matters:** timely, high-frequency insight into services, stronger monitoring of economic activity, evidence-based policy, and better forecasting and business-cycle analysis.
- **The gap it fills:** industry already had the IIP and the Index of Core Industries; services — over half of India's Gross Value Added — lacked a comparable monthly production index.

VALUE ADDITION — INDIA'S MONTHLY ACTIVITY INDICES

Index	Compiled by	What it tracks
Index of Industrial Production (IIP)	NSO, MoSPI	Volume of output in mining, manufacturing, electricity

Index of Core Industries (ICI)	Office of Economic Adviser, DPIIT	Output of nine core (infrastructure) industries
Index of Services Production (ISP)	MoSPI	Output across 19 services sub-sectors (base 2024-25)
CPI / WPI	NSO, MoSPI / OEA, DPIIT	Retail and wholesale prices (inflation, not output)

PRELIMS POINTERS

- ISP base year = **2024-25**; sub-sectors = **19**; release date = **29th** of each month.
- Highest July 2026 growth: **Administrative & support services** — not retail or banking.

SYLLABUS LINK GS 3 — Indian economy: growth, development, mobilisation of resources.



GS 3 ECONOMY · INDUSTRY THE HINDU · PAGE 6 (EDITORIAL)

03 Good Foundation: IIP Growth Hits 8% in August 2026

Industrial momentum, now aligned with the new Index of Core Industries, sets the economy up for the festive season

WHY IN NEWS Growth in the **Index of Industrial Production (IIP)** quickened to **8% in August 2026** — the second fastest since at least April 2024, the earliest month with growth data in the new IIP series.

- **Peak and trend:** the fastest was **8.8% in June 2026**; April–August growth stood at **6.8%**, faster than the same period in each of the previous two years.
- **Better data:** the new series has an updated base year, more data sources and improved methodology — and its trends now largely match the ICI, unlike the older series that often gave contrary signals.

VALUE ADDITION — NEW INDEX OF CORE INDUSTRIES (BASE 2022-23)

Released by the **Office of Economic Adviser (OEA)**, DPIIT, Ministry of Commerce & Industry. The 2022-23 series replaces the 2011-12 series, applied retrospectively from **April 2023** with a back series. **Iron ore** is added as the ninth core industry for its role in steel making.

#	Core industry	Weight (%)	#	Core industry	Weight (%)
1	Electricity	30.932	6	Iron Ore NEW	4.905
2	Refinery Products	22.572	7	Cement	4.410
3	Steel	17.584	8	Natural Gas	3.841
4	Crude Oil	7.430	9	Fertilizers	2.731
5	Coal	5.596	Overall Index		100.000

Good foundation

The festive season looks set to build on months of strong industrial growth

India's industrial growth performance in August continued its strong streak since the beginning of the financial year, and sets the economy up well for the upcoming festive season. Growth in the Index of Industrial Production (IIP) quickened to 8% in August 2026, the second fastest that it has been since at least April 2024, which is the earliest month for which the new series of the IIP has growth data. The fastest growth in this period, of 8.8%, came as recently as June 2026. In fact, IIP growth in the April-August period of this financial year stood at a robust 6.8%, faster than that seen during the corresponding periods of the previous two years. The new series has an updated base year, more data sources, and improved methodology, so this growth performance is as accurate an indication of industrial growth as government data can provide. Moreover, apart from a few divergences, IIP data largely match the trends evident in the Index of Core Industries (ICI), the other government index that measures industrial performance. For example, the IIP shows that the electricity sector's growth quickened to 12.3% in August 2026, while the ICI pegs it at 11.6%. Similarly, the construction goods sector saw growth come in at a relatively strong 6.4%, albeit slower than July's 8%. In keeping with that, the ICI shows that the cement sector grew by a robust 12.5% in August, though this was slightly slower than the 12.7% in July. The older series of both indices often provided contrary indications, so this alignment is welcome.

struction goods sector saw growth come in at a relatively strong 6.4%, albeit slower than July's 8%. In keeping with that, the ICI shows that the cement sector grew by a robust 12.5% in August, though this was slightly slower than the 12.7% in July. The older series of both indices often provided contrary indications, so this alignment is welcome.

The IIP for August also lays out some core strengths that seem to be developing in the economy. The manufacturing sector grew by nearly 9% in August, and averaged 7.6% in the April-August 2026 period. Given that it had grown by about 4.2% in the first five months of the previous financial year, this acceleration is good to see, especially since it comes at a time when producers are facing several input-related pressures. At the start of this calendar year, manufacturing growth seemed to have been driven by a growth in exports. The August data show that this is now being supplemented by a recovery in domestic consumption. The growth in consumer durables stood at 11.1% in August. The consumer non-durables sector returned to growth, of a little more than 2%, after having contracted in July. The effect of the Goods and Services Tax rate cuts in September 2025 should have petered out by now, so this boost in durables production likely means that producers are expecting a strong festive season ahead. The third quarter of the financial year will therefore be crucial for the economy, but the groundwork seems to be in place for a relatively good one.

Source clipping — The Hindu, Page 6 (Editorial)

- **Cross-check:** electricity grew **12.3%** (IIP) vs **11.6%** (ICI); construction goods **6.4%** (down from 8% in July) while ICI cement grew **12.5%** (12.7% in July).
- **Manufacturing:** nearly **9%** in August, averaging **7.6%** in April–August 2026 against about **4.2%** a year earlier — despite input-cost pressures.
- **Demand shift:** early-2026 manufacturing was export-driven; now domestic consumption is joining in — consumer durables **11.1%**, consumer non-durables back to ~2% after July's contraction.
- **Outlook:** the boost from the September 2025 GST rate cuts should have faded, so durables output signals producers expect a strong festive season; **Q3 (Oct–Dec)** will be decisive.

PRELIMS POINTERS

- ICI went from **8 to 9** industries — the new entrant is **Iron Ore**.
- Highest weight: **Electricity (30.93%)**; lowest: **Fertilizers (2.73%)**.

- IIP use-based groups: primary, capital, intermediate, infrastructure/construction, consumer durables, consumer non-durables.

SYLLABUS LINK GS 3 — Industrial growth, infrastructure, effects of liberalisation.

GS 3 ECONOMY · BANKING & FINANCE THE HINDU · PAGE 6 (OP-ED)

04 Household Debt: Financing Today Against Tomorrow

M. Suresh Babu (Director, Madras Institute of Development Studies) asks not how much households owe, but why, to whom and against what income

WHY IN NEWS Household borrowing is becoming part of everyday consumption. RBI data show India's household debt at **45.5% of GDP (September 2025)**, up from ~42% in June 2023 and **39.2% in March 2021**.

Household debt, financing today against tomorrow

Household borrowing is becoming an integral part of everyday consumption. Credit cards, personal loans, consumer durable loans, digital lending and buy-now-pay-later arrangements have expanded the possibilities of bringing future income into the present. The latest evidence points to a significant expansion of household leverage. According to the Reserve Bank of India (RBI), as of September 2025, India's household debt stood at 45.5% of its gross domestic product (GDP). In June 2023, the debt had been around 42% of GDP. The household debt had stood at 39.2% in March 2021. While this remains relatively modest compared with several emerging market economies, the composition and pace of household borrowing deserve closer attention.

The household savings transition

The conventional Indian household financial model was built around savings. This model has been undergoing a transformation. Household net financial savings declined sharply from the exceptionally high levels witnessed during the COVID-19 pandemic, though recent data suggest some recovery. According to the government's response in Parliament, household net financial savings increased to around 6% of GDP in 2024-25 from 5.2% in 2023-24. Thus, the story is not one of an across-the-board collapse of household savings. Housing loans traditionally represented a major component of household debt. Such borrowing creates an asset and can therefore be viewed differently from borrowing to finance routine consumption.

The rapid expansion of personal loans, credit-card borrowing and other unsecured loans raises a different set of questions. These loans enable households to smooth consumption when current income is inadequate, but they also bring future income under commitment. This is particularly important in an economy where employment remains highly unequal and income growth is uneven. A salaried household with predictable monthly earnings can service a loan relatively comfortably. A self-employed worker,



M. Suresh Babu

Director,
Madras Institute
of Development
Studies, Chennai

India's household debt story is more complicated than the headline number suggests

informal-sector employee or casual worker faces a very different risk profile. The RBI has noted that consumption-oriented borrowing remains significant, although its growth has moderated, while borrowing for productive purposes has been increasing. This should be welcomed, but should not obscure the distributional dimension of household indebtedness.

The fundamental question is why households are borrowing. If borrowing increases because incomes are rising and households are investing in houses, education or productive assets, higher indebtedness need not necessarily be a source of concern. But if borrowing is required to finance food, health care, education, housing rents, durable goods or other routine expenditures because current incomes are inadequate, debt becomes a mechanism for postponing rather than resolving the income constraint.

Digital lending platforms, instant personal loans, app-based credit and online consumer finance have substantially reduced the transaction costs associated with borrowing. The boundary between what a household can afford and what it can borrow becomes blurred. At the macroeconomic level, consumption financed through credit can support aggregate demand. At the household level, however, the same process creates future repayment obligations. When households borrow to finance health care, education, housing or old-age needs, debt is effectively substituting for inadequate social protection. In this sense, household debt is not merely an outcome of individual financial choices. It is shaped by the institutional structure of the economy.

The macroeconomic implications

Household debt has implications beyond individual borrowers. In the short run, credit expansion can stimulate consumption and support economic growth. But excessive household leverage can eventually have the opposite effect. As debt-servicing obligations rise, households reduce discretionary expenditure. Consumption becomes increasingly sensitive to

interest rates and employment conditions. The macroeconomic transmission mechanism is straightforward: Income stagnation, borrowing to sustain consumption, rising debt service, declining disposable income, weaker consumption, greater dependence on credit.

If this cycle becomes entrenched, credit ceases to be an instrument for productive investment and becomes a mechanism for sustaining consumption in the face of inadequate income growth. There is therefore a potential contradiction between credit-led consumption growth and income-led demand expansion.

The first can generate a temporary acceleration of demand. The second provides a more sustainable foundation. The policy response to rising household debt should not be simply to restrict lending. Credit is an essential component of economic development, and access to formal credit can substantially improve household welfare. The challenge is to distinguish productive credit from distress credit and asset-building borrowing from consumption smoothing under income pressure.

What the central issue is

India's household debt story is therefore more complicated than the headline number suggests. The government has emphasised that India's household leverage remains below that of many emerging-market peers and that household net financial savings have improved. But the central issue is not simply how much households owe. It is why they owe it, to whom they owe it, at what cost, and against what income.

The danger lies in confusing access to credit with improvement in economic welfare. The more unequal and uncertain incomes become, the greater the temptation to finance living standards through borrowing. The question before policymakers is therefore not merely how to regulate household debt, but how to build an economy in which households can live on their incomes rather than against their future incomes.

The views expressed are personal

Source clipping — The Hindu, Page 6 (Op-Ed)

- **Savings transition:** household net financial savings fell sharply after the COVID-19 peak but recovered to about **6% of GDP in 2024-25** from 5.2% in 2023-24 — not an across-the-board collapse.
- **Composition matters:** housing loans create assets; the fast rise of **personal loans, credit cards, BNPL and app-based credit** mortgages future income for present consumption.

- **Unequal risk:** a salaried household can service EMIs; a self-employed, informal or casual worker faces a very different risk profile. RBI notes consumption borrowing has moderated while productive borrowing is rising.
- **The key question — why borrow?** Borrowing for houses, education or productive assets is healthy; borrowing for food, health care, rent and routine needs merely **postpones the income constraint**.
- **Debt as substitute for social protection:** borrowing for health care, education, housing or old age reflects gaps in public provisioning.
- **Macro loop:** income stagnation → borrowing to sustain consumption → rising debt service → lower disposable income → weaker consumption → greater dependence on credit.
- **Way forward:** not to restrict lending, but to separate **productive credit** from **distress credit** and build an economy where households live on their incomes, not their future incomes.

VALUE ADDITION — REGULATORY TOOLKIT ON HOUSEHOLD CREDIT

Data source: RBI's half-yearly **Financial Stability Report** (June & December) tracks household debt and borrower quality.

Macroprudential step: in November 2023 the RBI raised risk weights on unsecured consumer credit (personal loans, credit cards) from 100% to **125%** to cool over-heated growth.

Digital lending: RBI's Digital Lending Directions require loans to flow directly between borrower and regulated entity, a Key Fact Statement with all-inclusive APR, and a cooling-off period.

Key terms: *Net financial savings* = gross financial assets minus financial liabilities. *Distress borrowing* = credit taken to meet consumption shortfalls rather than to build assets.

PRELIMS POINTERS

- Household debt: **39.2%** (Mar 2021) → **~42%** (Jun 2023) → **45.5%** of GDP (Sep 2025).
- Household net financial savings: **5.2%** (2023-24) → **~6%** of GDP (2024-25).

SYLLABUS LINK GS 3 — Mobilisation of resources, inclusive growth, banking sector.



GS 2, 3 IR · TRADE · ENERGY · ARCTIC THE HINDU · PAGE 6 (OP-ED)

05 India–EFTA TEPA at One: One Plus One Equals Three

Iceland's Ambassador Benedikt Höskuldsson on how the pact is building partnerships in geothermal energy, carbon capture, fisheries and the Arctic

WHY IN NEWS The **Trade and Economic Partnership Agreement (TEPA)** between India and the four EFTA states — **Iceland, Liechtenstein, Norway and Switzerland** — completed one year in force on **1 October 2026** (it entered into force on 1 October 2025).

VALUE ADDITION — EFTA, TEPA & THE ARCTIC COUNCIL

EFTA: created in 1960 by the Stockholm Convention; secretariat in Geneva; not part of the EU customs union, so it negotiates its own FTAs. TEPA was signed on **10 March 2024** in New Delhi.



The eight Arctic States around the Arctic Circle

Arctic Council (1996, Ottawa Declaration):

intergovernmental forum of the eight Arctic States — **Canada, Denmark (Greenland), Finland, Iceland, Norway, Russia, Sweden, USA.**

Decision-making: by consensus of the eight states, in consultation with the **six Permanent Participants** (Indigenous peoples' organisations).

Observers: 13 non-Arctic states, including India, China, Japan, South Korea and Singapore (all admitted at Kiruna, 2013).

Mandate excludes military security. India's Himadri station (2008) is at **Ny-Ålesund, Svalbard** (Norway).

The India-EFTA partnership, one plus one equals three

On October 1, 2025, the Trade and Economic Partnership Agreement (TEPA) between India and the four European Free Trade Association (EFTA) states — Iceland, Liechtenstein, Norway and Switzerland — entered into force. One year on, the more useful question is not how many tariff lines have fallen, but what kind of partnership the agreement is making possible.

The tariff figures are substantial. EFTA states have offered concessions on 92.2% of their tariff lines, covering 99.6% of the value of India's exports to them. India, in turn, is granting concessions on 82.7% of its tariff lines, covering 95.3% of the value of EFTA's exports. Few market-opening exercises between India and a group of developed economies have been this ambitious.

Lasting partnerships, an India focus

Yet, the defining feature of TEPA lies elsewhere. It was the first trade agreement that India signed with a dedicated chapter on investment and job creation. Under it, the EFTA states aim to raise investment in India by \$100 billion over 15 years and to facilitate one million direct jobs. An agreement based on that is designed to build lasting industrial and technological partnerships.

For a country of just under 4,00,000 people, Iceland's contribution to that partnership was never going to be about scale. It is about experience, particularly in three areas where that experience speaks directly to India's priorities.

The first is geothermal energy, specifically a part of it that receives far less attention than power generation: the direct use of low- to medium-temperature heat. In Iceland, geothermal energy heats nearly every home, dries fish, warms greenhouses and keeps entire communities running through Arctic winters without burning fossil fuels. That century of experience in direct use is what the Himalayan geothermal belt of northern India can draw on.

Consider the apple growers of Himachal Pradesh. Many have long been forced to sell their harvest immediately, at the lowest prices of the season, because they lacked the means to store their crops.

That is now changing. At Tapri, in Kinnaur district, a geothermal facility operated by Geotropy, an Indian-Icelandic venture, uses heat drawn from the ground to dry fruit, and this harvest season, it is running round the clock as growers line up to use it.

A geothermal cooling facility at the same site is due to be completed by the end of the year. Farmers there can now process their produce



Benedikt Höskuldsson
The Ambassador of Iceland to India

An ambitious India-Europe partnership can deliver across trade, technology, energy and Arctic stewardship

and time their sales rather than remain price-takers at harvest, drawing on the same direct-use techniques that Iceland has refined over generations. Or consider the high-altitude communities and installations along India's northern frontier, which depend on fuel hauled along supply lines that can close for months. Heat drawn directly from the ground beneath them offers something no convoy can: energy security that does not depend on the road remaining open.

The second area is carbon capture, utilisation and storage. A NITI Aayog study in 2022 estimated that India could capture some 750 million tonnes of carbon dioxide a year by 2050. The scientific foundations are being laid by the Department of Science and Technology, which has steered India's carbon capture, utilisation and storage (CCUS) research for years and, in December 2025, published the country's first dedicated research and development road map for CCUS in support of the 2070 net-zero goal.

The Union Budget followed in February with an outlay of ₹20,000 crore over five years to take these technologies towards scale in power, steel, cement, refining and chemicals, while public sector companies such as the Oil and Natural Gas Corporation, NTPC Limited (formerly National Thermal Power Corporation) and Indian Oil Corporation Limited are taking the work into the field through feasibility studies, pilot projects and subsurface assessments.

This pre-commercial stage is exactly where Iceland's experience is most valuable, on both sides of the equation. On storage, CarbFix has shown that when carbon dioxide is dissolved in water and injected into basalt, more than 95% of it turns to stone within two years; India's Deccan Trap basalts share striking geological similarities with Iceland's volcanic rock.

New frontiers

On utilisation, Iceland was home to the world's first industrial-scale plant to turn captured carbon dioxide into fuel: Carbon Recycling International's George Olah plant at Svartsengi, which began producing methanol in 2011-12. Its technology now operates on a far larger scale abroad, including in projects involving steel-sector emissions. In May, Carbon Iceland signed a memorandum of understanding with JSW Steel and Bharatia to explore a 3,00,000-tonne-a-year e-methanol project in Raigad, Maharashtra, converting steel-plant emissions into fuel using green hydrogen. The opportunity, therefore, lies less in exporting equipment than in sharing knowledge and

building partnerships through technology licensing, storage assessment, monitoring and verification, and the co-development of projects as India's pilots scale up.

The third area is the ocean. Iceland's economy was built on the sustainable management of North Atlantic fisheries, and with it came deep expertise in seafood quality, cold-chain logistics and value-added processing. Icelandic companies are already exploring how to bring further processing of North Atlantic catch to Indian shores, creating local jobs and transferring technology under the TEPA concessions.

Iceland has also shown that the greatest gains may lie in what is usually thrown away. Where most fishing nations use only 40% to 60% of each fish, Iceland now uses around 90% of every cod landed, turning skin, liver and bones into medical products, oils and feed. India does not need to catch a single additional fish to create new value, jobs and exports. It needs only to look differently at what its fleets already bring ashore.

All of this sits within a wider frame. Nearly six years of working on energy access at the United Nations, along with a seat at the table during the Paris Agreement negotiations, taught this writer that climate and energy policy are, at their core, exercises in patient and practical partnership between nations. That same spirit defines Iceland's and India's engagement in the Arctic. Iceland is a founding member of the Arctic Council; India has been an Observer since 2013 and has taken that role seriously, publishing its Arctic Policy in 2022 and operating the Himadri research station in Svalbard. As one of the eight Arctic States, Iceland offers India a direct and trusted bilateral channel into Arctic governance and research, complementing its multilateral engagement. For Iceland and India, energy, trade and Arctic stewardship are part of the same conversation.

Some Icelandic arithmetic

TEPA is young, but it is already showing what an ambitious, rules-based partnership between Europe and India can deliver in investment, technology and jobs, as well as in energy, fisheries and shared stewardship of a changing Arctic. It is not a rival to the European Union (EU)-India Free Trade Agreement (FTA) but a complement to it: a working model, already in force, of what the next chapter of Europe-India trade can look like. If readers will permit a small piece of Icelandic arithmetic, TEPA and the EU-India FTA are a case of one plus one equalling three. That is not competition but addition — and a rather good addition at that.

Source clipping — The Hindu, Page 6 (Op-Ed)

- **Tariff ambition:** EFTA offers concessions on **92.2%** of tariff lines covering **99.6%** of India's exports; India offers **82.7%** of lines covering **95.3%** of EFTA exports.

- **Defining feature:** India's first trade agreement with a dedicated **investment and job-creation chapter** — EFTA aims to raise investment by **\$100 billion over 15 years** and facilitate **one million direct jobs**.
- **Geothermal (HP link):** at **Tapri, Kinnaur**, a geothermal fruit-drying facility run by Geotropy, an Indian-Icelandic venture, lets apple growers process and time sales instead of selling at harvest-time lows; a geothermal cooling facility is due by year-end. Direct heat can also power high-altitude northern settlements.
- **CCUS:** NITI Aayog (2022) estimated India could capture **~750 MTPA of CO₂ by 2050**; DST released India's first CCUS R&D roadmap (Dec 2025); the Union Budget (Feb 2026) set aside **₹20,000 crore over five years**; ONGC, NTPC and IOCL run pilots.
- **Icelandic know-how:** the George Olah plant at Svartsengi made methanol from captured CO₂ (2011-12); **CarbFix** dissolves CO₂ in water and injects it into basalt, where 95%+ mineralises within two years — India's **Deccan Traps** basalt is geologically similar. Carbon Iceland has an MoU with JSW Steel to explore a 3,00,000-tonne-a-year e-methanol project in Raigad, Maharashtra.
- **Blue economy:** Iceland uses **~90% of every cod** (skin, liver, bones into medical products, oils, feed) against 40–60% elsewhere — value without catching more fish.
- **Arctic:** Iceland is a founding member of the Arctic Council; India, an Observer since 2013, published its Arctic Policy in 2022 and runs **Himadri** station at Svalbard. TEPA complements, not rivals, the EU–India FTA.

PRELIMS POINTERS

- TEPA is with **EFTA (4 states)**, not with the EU; none of the four is an EU member.
- Arctic Council: **8 Arctic States**, decisions by **consensus**; India = Observer (2013).
- India's geothermal hotspots: Puga (Ladakh), Manikaran & Tattapani (HP), Tapri (Kinnaur).

SYLLABUS LINK GS 2 — Bilateral/regional agreements affecting India's interests; GS 3 — Energy, conservation, blue economy.

Practice Zone TEST WHAT YOU READ TODAY

MAINS ANSWER WRITING

Q1 · GS 3 · 15 MARKS · 250 WORDS

"India's rising household debt is less a sign of financial deepening than a symptom of an unresolved income constraint." Critically examine the statement and suggest a policy approach that separates productive credit from distress credit.

“भारत में बढ़ता घरेलू ऋण वित्तीय गहनता का संकेत कम और आय की अनसुलझी बाधा का लक्षण अधिक है।” इस कथन का आलोचनात्मक परीक्षण कीजिए तथा उत्पादक ऋण को संकटजनित ऋण से अलग करने वाले नीतिगत दृष्टिकोण का सुझाव दीजिए।

APPROACH

1. **Introduction:** Cite RBI data: household debt rose from 39.2% (Mar 2021) to 45.5% of GDP (Sep 2025); note the shift to unsecured, app-based credit.

2. **Supporting the statement:** Consumption borrowing for food, health, rent; uneven income growth and informal work; debt as a substitute for social protection; the debt-service → lower disposable income loop.
3. **Counter-view:** Net financial savings recovered to ~6% of GDP (2024-25); leverage below many EME peers; housing and productive borrowing rising; formal credit access is itself welfare-enhancing.
4. **Way forward:** Granular credit-purpose data; calibrated risk weights; enforce Digital Lending Directions; strengthen public health, education and pension cover; raise incomes through jobs and skilling.
5. **Conclusion:** The goal is not to curb credit but to build an economy where households live on their incomes rather than their future incomes.

Q2 · GS 2 · 15 MARKS · 250 WORDS

The India-EFTA Trade and Economic Partnership Agreement marks a shift from tariff-centric trade deals to investment- and technology-centric partnerships. Discuss with reference to clean energy and the blue economy.

भारत-ईएफटीए व्यापार एवं आर्थिक भागीदारी समझौता (TEPA) शुल्क-केंद्रित व्यापार समझौतों से निवेश एवं प्रौद्योगिकी-केंद्रित साझेदारी की ओर बदलाव को दर्शाता है। स्वच्छ ऊर्जा और नीली अर्थव्यवस्था के संदर्भ में चर्चा कीजिए।

APPROACH

1. **Introduction:** TEPA with Iceland, Liechtenstein, Norway and Switzerland – in force since 1 October 2025; first Indian FTA with a binding investment and jobs chapter (\$100 bn, 15 years, 1 million jobs).
2. **Beyond tariffs:** Concessions on 92.2% of EFTA lines (99.6% of India's exports) are only the base; the real value lies in technology licensing, co-development and FDI.
3. **Clean energy:** Direct-use geothermal (Tapri, Kinnaur fruit drying); CCUS – CarbFix basalt mineralisation and Deccan Traps; CO₂-to-methanol; ₹20,000 crore CCUS outlay.
4. **Blue economy:** Icelandic cold chain and ~90% fish utilisation; value addition without extra catch; jobs in coastal processing.
5. **Challenges & conclusion:** Investment commitment is aspirational; IPR and services concerns; need for state capacity. TEPA complements the EU-India FTA – "one plus one equals three".

PRELIMS MCQS

1. Consider the following statements regarding green crackers:

1. They were developed by CSIR-NEERI.
2. They contain no aluminium at all.
3. SWAS variants release water vapour to suppress dust.

How many of the above statements are correct?

- | | |
|---------------|--------------|
| (a) Only one | (b) Only two |
| (c) All three | (d) None |

2. The noise limit for firecrackers cited before the Supreme Court is:

- | | |
|---------------------------------|---------------------------------|
| (a) 90 dB(AI) / 110 dB(C) peak | (b) 110 dB(AI) / 125 dB(C) peak |
| (c) 125 dB(AI) / 145 dB(C) peak | (d) 160 dB(AI) / 180 dB(C) peak |

3. Which chemical, largely removed from green crackers, is chiefly responsible for smoke and the green colour in conventional fireworks?

- | | |
|-------------------------|--------------------|
| (a) Potassium chlorate | (b) Barium nitrate |
| (c) Strontium carbonate | (d) Sodium oxalate |

4. With reference to the Index of Services Production (ISP), consider the following:

1. It is released by MoSPI with 2024-25 as base year.
2. It covers 19 services sub-sectors.
3. It is released on the 12th of every month.

Which of the above are correct?

- | | |
|------------------|------------------|
| (a) 1 and 2 only | (b) 2 and 3 only |
| (c) 1 and 3 only | (d) 1, 2 and 3 |

5. In July 2026, which services sub-sector recorded the highest growth in the ISP?

- | | |
|------------------|---|
| (a) Retail trade | (b) Banking |
| (c) Real estate | (d) Administrative and support services |

6. Which industry was newly added to the Index of Core Industries in its 2022-23 base-year series?

- | | |
|-----------------|---------------|
| (a) Iron ore | (b) Aluminium |
| (c) Natural gas | (d) Bauxite |

7. In the new Index of Core Industries (base 2022-23), which industry carries the highest weight?

- | | |
|-----------------------|-----------|
| (a) Refinery products | (b) Steel |
| (c) Electricity | (d) Coal |

8. Which one of the following is NOT a member of the European Free Trade Association (EFTA)?

- | | |
|-------------|-------------------|
| (a) Iceland | (b) Liechtenstein |
| (c) Denmark | (d) Switzerland |

9. Consider the following statements about the Arctic Council:

1. Its decisions require consensus of the eight Arctic States.
2. India became an Observer in 2013.
3. It deals with military security in the Arctic.

Which of the above are correct?

- | | |
|------------------|------------------|
| (a) 1 only | (b) 1 and 2 only |
| (c) 2 and 3 only | (d) 1, 2 and 3 |

10. "CarbFix", recently in news, is associated with:

- | | |
|--|--|
| (a) Converting captured CO ₂ into stone by injecting it into basalt | (b) Turning plastic waste into road material |
| (c) Seeding clouds with silver iodide | (d) Capturing methane from paddy fields |

ANSWER KEY & RATIONALE

- 1 (b) Statements 1 and 3 are correct. SAFAL means Safe *Minimal* Aluminium — aluminium is reduced, not eliminated.
- 2 (c) CSIR-NEERI's suggested ceiling of 125 dB(AI)/145 dB(C) peak mirrors the standard under the Environment (Protection) Rules, 1986.
- 3 (b) Barium nitrate is the oxidiser behind green flames and much of the smoke; the SC has barred barium in crackers.
- 4 (a) Monthly trial indices are released on the 29th of every month (next working day if a holiday), with a ~60-day lag.
- 5 (d) Administrative and support services grew 20.9%, ahead of retail trade (18.5%) and real estate (14.4%).
- 6 (a) Iron ore was added for its role in steel making, taking the ICI from eight to nine industries.
- 7 (c) Electricity (30.93%) leads, followed by refinery products (22.57%) and steel (17.58%).
- 8 (c) EFTA has four members: Iceland, Liechtenstein, Norway and Switzerland. Denmark is an EU member.
- 9 (b) The Ottawa Declaration (1996) expressly keeps military security outside the Council's mandate.
- 10 (a) CarbFix (Iceland) dissolves CO₂ in water and injects it into basalt, where over 95% mineralises within two years.

QUICK REVISION RECAP

Firecrackers — No nationwide ban; next-gen joined green crackers allowed on conditions — 125 dB(AI)/145 dB(C), approved formulations, licensed makers, no barium; ~30% lower emissions; no 24-hour bursting.

ISP — MoSPI · base 2024-25 · 19 sub-sectors · released on 29th · July 2026 leader: administrative & support services (20.9%).

IIP / ICI — IIP 8% in Aug 2026 (peak 8.8% in June); manufacturing ~9%; durables 11.1%. New ICI base 2022-23, 9 industries, iron ore added, electricity heaviest.

Household debt — 45.5% of GDP (Sep 2025); net financial savings ~6% of GDP (2024-25); key issue is why households borrow — productive vs distress credit.

India-EFTA TEPA — In force 1 Oct 2025; \$100 bn FDI / 1 million jobs over 15 years; geothermal (Tapri, Kinnaur), CCUS (CarbFix), fisheries, Arctic cooperation.

PRELIMS TRAP-SETTERS

△ EFTA ≠ EU: TEPA is with Iceland, Liechtenstein, Norway and Switzerland — none is in the European Union.

△ TEPA was **signed** on 10 March 2024 but **entered into force** on 1 October 2025 — examiners swap the two dates.

△ The ICI is compiled by the Office of Economic Adviser, **DPIIT** (Commerce Ministry), not by MoSPI — but IIP and ISP are MoSPI products.

△ SAFAL = Safe **Minimal** Aluminium, not aluminium-free; SWAS and STAR drop sulphur and potassium nitrate.

△ India is an **Observer** in the Arctic Council, not a member; Himadri is in Svalbard (Norway), not in Iceland or Greenland.

△ Green crackers are about 30% **less** polluting — not pollution-free.

PLACES & PERSONS IN NEWS

PLACES	PERSONS
Tapri (Kinnaur, HP): Site of a geothermal fruit-drying facility run by Indian-Icelandic venture Geotropy; a geothermal cooling unit is due by year-end.	Justice M.M. Sundresh: Headed the SC Bench that ruled out a total firecracker ban.
Svartsengi (Iceland): Home to the George Olah plant, the world's first industrial-scale plant turning captured CO ₂ into methanol.	Aishwarya Bhati: Additional Solicitor-General who placed CSIR-NEERI's recommendations for the Centre.
Raigad (Maharashtra): Proposed 3,00,000-tonne-a-year e-methanol project explored by Carbon Iceland with JSW Steel.	M. Suresh Babu: Director, Madras Institute of Development Studies, Chennai; author of the household-debt op-ed.
Svalbard (Norway): Arctic archipelago hosting India's research station Himadri at Ny-Ålesund.	Benedikt Höskuldsson: Ambassador of Iceland to India; author of the India-EFTA op-ed.
Deccan Traps: Basalt province of peninsular India, geologically similar to Iceland's volcanic rock — suited to CO ₂ mineralisation.	

PRELIMS BYTES

Geothermal energy: Heat from the earth's interior; India's major provinces include the Himalayan belt (Puga, Manikaran), Cambay, the west coast and Son-Narmada-Tapi.

CCUS: Carbon Capture, Utilisation and Storage — capturing CO₂ from point sources for reuse (fuels, chemicals) or permanent geological storage.

CSIR: Council of Scientific & Industrial Research (1942); autonomous society under the Ministry of Science & Technology, chaired by the Prime Minister as President.

CPCB: Central Pollution Control Board, a statutory body under the Water (Prevention and Control of Pollution) Act, 1974.

MoSPI: Formed in 2008 by merging the Department of Statistics and the Department of Programme Implementation; NSO is its statistical wing.

“The question is not merely how to regulate household debt, but how to build an economy in which households can live on their incomes.”