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The worldwide oil-refining crunch

What is the issue?

Drivers around the world are feeling pain at the pump with fuel prices soaring, and costs are surging for heating buildings, power generation, and industrial production.

Background

- Prices were already elevated before Russia invaded Ukraine on Feb. 24.
- But since mid-March, fuel costs have surged while crude prices are up only modestly.
- Much of the reason is a lack of adequate refining capacity to process crude into gasoline and diesel to meet high global demand.

How much can the world refineries produce daily?

- Across the globe, there is enough capacity to refine about 100 million barrels of oil a day, according to the International Energy Agency, however, about 20% of that capacity is not useable.
- Much of that unusable capacity is in Latin America and other places where there is a lack of investment.
- That leaves somewhere around 82-83 million barrels per day (bpd) in projected capacity.

How many refineries have closed?

- The refining industry estimates that the world lost a total of 3.3 million barrels of daily refining capacity since the start of 2020.
- About a third of these losses occurred in the United States, with the rest in Russia, China, and Europe.
- Fuel demand crashed early in the pandemic when lockdowns and remote work were widespread.
- Before that, refining capacity had not declined in any year for at least three decades.

Factors contributing to high prices

- The United States, China, Russia, and Europe are all operating refineries at lower capacity than before the pandemic.
- **United States:** US refiners shut nearly one million bpd of capacity since 2019 for various reasons.
- **Russia:** Nearly 30% of Russia's refining capacity was idled in May, sources told Reuters. Many

Western nations are rejecting Russian fuel.

- **China:** It has the sparest refining capacity.
- Refined product exports are only allowed under official quotas, mainly granted to large state-owned refining companies and not to smaller independent companies.
- China's state-backed refineries averaged around 71.3% and independent refineries were around 65.5%.
- That was up from earlier in the year, but low by historic standards.

What else is contributing to high prices?

- The cost to carry products on vessels overseas has risen due to high global demand, as well as sanctions on Russian vessels.
- In Europe, refineries are constrained by high prices for natural gas, which powers their operations.
- Some refiners also depend on vacuum gasoil as an intermediate fuel.
- The loss of Russian vacuum Gasoil has prevented certain from restarting certain gasoline-producing units.

Who is gaining from the current situation?

- Refiners, especially those that export a lot of fuel to other countries, such as US refiners.
- Global fuel shortages have boosted refining margins to historic highs, with the key 3-2-1 crack spread nearing \$60 a barrel.
- That has driven big profits for US-based Valero and India-based Reliance Industries.

Will oil refining pick up in the future?

- Global refining capacity is set to expand by 1 million barrels per day in 2022 and 1.6 million bpd in 2023.
- In April, 78 million barrels were processed daily, down sharply from the pre-pandemic average of 82.1 million bpd.
- The IEA expects refining to rebound during the summer to 81.9 million bpd as Chinese refiners come back online.

What is India's Position?

- India, which refines more than 5 million bpd, according to the IEA, has been importing cheap Russian crude for domestic use and export.
- It is expected to boost output by 450,000 by year-end, the IEA said.

What is the way forward?

- More refining capacity is set to come online in the Middle East and Asia to meet growing demand.
- When the countries like the US, Russia, and China start operating to the pre-pandemic levels, then the demand can be met.

Reference

1. <https://indianexpress.com/article/explained/explained-worldwide-oil-refining-crunch-7985206/ite/>

Towards a single low tax regime

Why in news?

In December 2018, the late Finance Minister, Arun Jaitley, announced that the 28% GST slab, which he called the “dying slab”, would be phased out, except for luxury items, and India would eventually have just two slabs: 5% and a standard rate between 12% and 18%.

Why is the tax regime complex and confusing?

- The introduction of a uniform GST was a watershed moment in India since the country’s earlier regime of taxes and cesses, both at the Centre and the States, was a big barrier to free trade and economic growth and was a cesspool of corruption.
- However, GST is still a complicated tax regime with different slabs.
- It is not easy to comprehend or comply with and is open to interpretation, harassment, and avoidable litigation.
- Bureaucracy, the world over, is usually oblivious to the keep it simple, stupid (KISS) principle.
- Asking bureaucrats to identify and categorize all products and services for differential tax slabs in the GST regime is the surest way to get into a muddle.
- An unambiguous directive to the bureaucracy is necessary from the ruling dispensation to come up with just two categories: goods eligible for zero tax and goods that will fall under a single rate, say 10% or 12%.
- That means everything except those specifically exempt, is taxed.
- ‘Sin’ taxes, for instance, are at cross purposes with the government’s policy of generating growth and creating jobs under ‘Make in India’.

A case study approach

- A typical 300-room five-star hotel generates direct employment for around 500 people of whom 90% are waiters, housekeeping staff, front desk staff, security and concierge staff, besides cooks, financial and clerical staff.
- There are a host of others employed in associated services such as the spa, gift shops, and swimming pool.
- The hotel also generates indirect employment in ancillary areas: it buys bed linen, furnishings, rugs and carpets, air conditioners, cutlery, electrical fittings, and furniture, and consumes enormous quantities of food produce.
- All these generate jobs and income for farmers, construction contractors, artisans, and other manufacturers.
- Five-star hotels also generate foreign exchange by attracting rich tourists and visitors.
- So, it’s unwise to tax these hotels to death.
- **Household necessities:** Similarly, high taxes on air-conditioners, air-conditioned restaurants, chocolates, and luxury cars create an economic ripple effect downstream, in a complex web of businesses that have symbiotic relationships.
- The effect finally reaches down to the bottom of the employment pyramid.
- **Food:** The GST on bread is zero, but the vegetable sandwich is in the 5% tax slab, hitting the vegetable grower directly.
- The GST on buns is zero, but buns with a few raisins fall in the 5% slab.
- **Automobiles sector:** the GST on electric cars, tractors, cycles, bikes, low-end and luxury cars ranges anywhere from 5% to 50%.
- The sale of automobiles is the barometer of an economy.

What are the items that are exempt from the GST?

- Petrol, diesel, and aviation turbine fuel are not under the purview of GST but come under Central excise and State taxes.
- Central excise duties and varying State taxes contribute over 50% of the retail price of petrol and diesel, probably the highest in the world barring banana republics.
- There is distrust between the States and the Centre on revenue sharing.

What are the ways to overcome the complexity?

- The plan must be to figure out how to rev up the economy.
- It can be done by making the rich and upper-middle-class spend and moving more people up the value chain.
- This can be done in order that more chocolates and ACs and automobiles are bought by them, instead of designing a tax system that keeps these products out of the new consumer class's reach.

What is the way forward?

- **KISS model:** The low-cost airline model is successful because of the KISS principle.
- Single class seating, point-to-point travel with no code sharing, direct Internet booking, and no middlemen. etc. have sustained this model.
- The Finance Minister should take a cue from the Prime Minister, who hinted at major reforms in the aftermath of COVID-19 and do away with all the confusing tax slabs in one fell swoop.
- That will ensure compliance, widen the tax net, improve ease of doing business, boost the economy, create jobs, increase tax collections and reduce corruption as witnessed in many countries - a move that will be both populist and well-regarded by economists.

Reference

1. <https://www.thehindu.com/todays-paper/tp-opinion/towards-a-single-low-tax-regime/article65555922.ece>

Prelim Bits 23-06-2022 | UPSC Daily Current Affairs

Domestication of Chickens

Researchers have found that an association with dry rice farming likely started a domestication process, which has led to chickens becoming one of the world's most numerous domesticated animals.

- Previous efforts claimed that
 1. Chickens were domesticated up to 10,000 years ago in China, Southeast Asia, or India, and
 2. Chickens were present in Europe over 7,000 years ago.
- The new studies show these claims are wrong.
- It says that the driving force behind chicken domestication was the arrival of **dry rice farming** into **south-east Asia** where their wild ancestor, the arboreal **red jungle fowl** (*Gallus gallus spaedicus*) lived.

The red jungle fowl is a tropical bird in the pheasant family. Charles Darwin first proposed that chickens may have descended from the red jungle fowl because of their similar appearances.

- Dry rice farming acted as a magnet drawing wild jungle fowl down from the trees and thereby kick-starting domestication of the jungle fowl.
- This domestication process was underway by around **1,500 BC** (Bronze Age) in the **Southeast Asia peninsula**.
- The research suggests that chickens were then transported first across Asia and then throughout the Mediterranean Europe along routes used by early Greek, Etruscan and Phoenician maritime traders.
- Another study found that the domesticated fowl arrived in Mediterranean Europe around 2,800 years ago and then appeared in Africa 1,100 and 800 years ago.
- **Reason** - Archeologists have found people being buried with chickens, rather than discarded as scraps, making a domestic relationship clear.
- Because the birds were buried with humans, it suggested that they had a cultural or social significance and were sacred creatures instead of a food source.
- This means that a **desire for meat did not drive the domestication** of the chicken.

The oldest bones of a definite domestic chicken were found at Neolithic Ban Non Wat in central Thailand, and date to between 1,650 and 1,250 BC.

Reference

1. <https://www.thehindu.com/sci-tech/when-and-where-were-chickens-domesticated/article65537060.ece>
2. <https://www.smithsonianmag.com/smart-news/researchers-pinpoint-date-when-chickens-were-first-domesticated-180980212/#:~:text=The%20earliest%20chicken%20remains%20came%20from%20between%201650%20B.C.E.%20and,years%20ago%2C%20Science%20News%20reports.>
3. <https://www.pnas.org/doi/10.1073/pnas.2121978119>

Darjeeling Himalayan Railway

The Darjeeling Himalayan Railway has recorded its highest ever monthly revenue generation.

- The Darjeeling Himalayan Railway (DHR) or the **Toy Train** is a 141-year-old **mountain railway system** that started operating in 1881.
- Located in the foothills of the Himalayas, it is a 2-ft gauge railway that runs in **West Bengal**.
- This railway system comes under the Guwahati-headquartered **Northeast Frontier Railway** (NFR).
- The NFR currently operates a daily service between **New Jalpaiguri and Darjeeling** and 12 joyride services between **Darjeeling and Ghum** (India's highest railway station).
- The DHR also introduced special services such as Steam Jungle Tea Safari, Red Panda and Him Kanya.
- The DHR is a **UNESCO World Heritage Site** since 1999.

Mountain Railways Declared as UNESCO World Heritage Sites	
Darjeeling Himalayan Railway	West Bengal (1999)
Nilgiri Mountain Railways	Nilgiri Hills of Tamil Nadu (2005)

Reference

1. <https://www.thehindu.com/todays-paper/tp-miscellaneous/tp-others/record-earnings-for-darjeeling-toy-train/article65555424.ece>
2. <http://dhr.in.net/about-us.php>
3. <https://darjeeling.gov.in/tourist-place/joy-ride-in-darjeeling-himalayan-railway-popularly-known-as-toy-train-from-darjeeling-to-darjeeling-via-batasia-loop-ghoom/>

Zmiinyi Island

Ukraine has caused “significant losses” to the Russian military in airstrikes on the Zmiinyi Island in the Black Sea.

- Located in the **Black Sea**, the Zmiinyi Island is also known as the Snake Island or the Serpent Island.
- It is a small piece of rock less than 700 metres from end to end.
- It belongs to Ukraine.
- The island has been known since ancient times and is marked on the map by the **village of Bile** that is located on it.
- Snake Island lies close to the mouth of the **River Danube**, which delineates Romania's border with Ukraine.
- It is also roughly to the southwest of the **port city of Odessa**.

The Black Sea

- The Black Sea is an **inland sea** situated at the south-eastern extremity of Europe.
- It is bound by Ukraine to the north and northwest, Russia to the north east, Georgia to the east, Turkey to the south, and Bulgaria and Romania to the west.
- It is **connected to the Atlantic Ocean** by the Bosphorus, the Sea of Marmara, the Dardanelles, the Aegean Sea, and the Mediterranean Sea.
- The **Crimean Peninsula** thrusts into the Black Sea from the north, and just to its east the **Kerch Strait** links the sea to the smaller Sea of Azov.
- **Features** - The Black Sea is a remarkable feature because its lower levels are almost biologically dead—not because of pollution but because of continued weak ventilation of the deep layers.
- It has traditionally been Russia’s warm water gateway to Europe.
- **History** - The ancient Greeks named the sea - then on the fringe of the Mediterranean world - as the **Pontus Axeinus** (Inhospitable Sea).
- As later explorations revealed that the shores of the sea are more hospitable and friendly, the Greeks changed its name to **Pontus Euxinus**, the opposite of the earlier designation.
- In the past, the Turks called it the **Karadeniz**, as they only saw the inhospitable aspect of the Black Sea.
- **Related Links** - [Aegean Sea](#), [Montreux Convention](#)



Reference

1. <https://indianexpress.com/article/explained/everyday-explainers/explained-importance-snake-is-land-black-sea-ukraine-bombed-russia-7985298/>
2. <https://www.britannica.com/place/Black-Sea>
3. <https://www.bbc.com/news/world-europe-61406808>

Pragati Maidan Integrated Transit Corridor Project

The Prime Minister dedicated to the nation the main tunnel and 6 underpasses of Pragati Maidan Integrated Transit Corridor Project.

- The Pragati Maidan Integrated Transit Corridor project is a part of the ITPO-Pragati Maidan Redevelopment Project.
- Started in 2017, the project has been entirely funded by the Central Government.

- But, it was executed by the Delhi government's Public Works Department (PWD).
- The key aims of this project are,
 1. To de-congest traffic around the Pragati Maidan Trade Centre and
 2. To remove bottlenecks on Bhairon Marg, Ring Road, ITO-W point and Mathura Road and make it signal free.
- The main Tunnel connects Ring Road with India Gate via Purana Qila Road passing through Pragati Maidan.
- It will serve as an alternative route to Bhairon Marg.
- Along with the tunnel, there will be 6 underpasses - 4 on Mathura Road, one on Bhairon Marg and one on the intersection of Ring Road and Bhairon Marg.

Reference

1. <https://pib.gov.in/PressReleasePage.aspx?PRID=1835255>
2. https://www.business-standard.com/article/current-affairs/pragati-maidan-integrated-transit-corridor-to-cut-commute-time-by-15-mins-122061900592_1.html#:~:text=According%20to%20a%20statement%20from,by%20the%20Delhi%20government's%20PWD.
3. <https://indianexpress.com/article/explained/explained-the-new-corridor-project-the-purpose-it-will-serve-7979153/>

New Advisory on Type-1 Diabetes

The Indian Council of Medical Research (ICMR) has published the country's first-ever list of basic dos and don'ts to ensure the safety of Type-1 patients during travel.

As per the International Diabetes Federation, India has the highest number of incident and prevalent cases of Type-1 diabetes in the world.

- The ICMR guideline document provides advice on care of diabetes in **children, adolescents and adults** with Type-1 diabetes.
- This document states that individuals with Type-1 diabetes need support
 1. To survive, using insulin and other therapies, and
 2. To live their entire life without stigma, restrictions, or disabling complications due to their illness.
- The ICMR's pre-travel advice for children and adolescents living with Type-1 diabetes includes,
 1. Never wearing brand new shoes for a trip, instead carry comfortable shoes to avoid straining the feet while on travel,
 2. Alternating between two pairs of shoes to decrease the risk of blisters and calluses,
 3. Travelling with flash cards to navigate language barrier,
 4. Storage of insulin and how to minimise glucose fluctuation.
- The patients should inform the physician in advance, preferably 4 to 6 weeks before the planned travel.
- They should have medications and blood testing materials for the whole trip plus reserve supplies for at least 2 to 4 weeks if unforeseen circumstances extend the travel.
- Patients with a **medical identification bracelet** should have information on the disease, use of insulin, and disclose any allergies.

Type-I Diabetes

- Type-I diabetes is a chronic condition in which the pancreas **produces little or no insulin**.
- It is once known as juvenile diabetes or insulin-dependent diabetes.

Insulin is a hormone needed to allow sugar (glucose) to enter cells to produce energy.

- Although type 1 diabetes **usually appears during childhood or adolescence**, it can develop in adults.
- **Causes** - The type 1 diabetes is thought to be caused by an autoimmune reaction (the body attacks itself by mistake).
- Usually, the body's own immune system mistakenly destroys the insulin-producing (islet, or islets of Langerhans) cells in the pancreas.
- Different factors may contribute to type-1 diabetes. These include,
 1. Genetics,
 2. Exposure to viruses and
 3. Exposure to other environmental factors.

Diet and lifestyle habits don't cause type 1 diabetes.

- **Symptoms** include increased thirst, frequent urination, extreme hunger, unintended weight loss, fatigue, bed-wetting in children who previously didn't wet the bed during the night, and blurred vision.
- Despite active research, type 1 diabetes has **no cure**. Treatment focuses on managing blood sugar levels with insulin, diet and lifestyle to prevent complications.

Reference

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3. <https://www.cdc.gov/diabetes/basics/what-is-type-1-diabetes.html>