



C.A Dated On 22-04-2019

GS-2

Oil Price Rise:

Oil prices jumped on Monday as the United States looked set to announce that all buyers of Iranian oil must end their imports or be subject to sanctions.

Why?

- News that the United States is preparing to announce on Monday that current buyers of Iranian oil would no longer be given waivers to sanctions was first reported on Sunday by the Washington Post.
- "Should Iran's sanction waivers indeed be lifted, that could boost oil prices towards the \$80 per barrel mark," said Han Tan, analyst at futures brokerage FXTM.

Background:

- Prior to the re-imposition of sanctions, [Iran](#) was the fourth-largest producer among the Organization of the Petroleum Exporting Countries (OPEC) at almost 3 million barrels per day (bpd), but April exports have shrunk well below 1 million bpd, according to ship tracking and analyst data in Refinitiv.
- The United States put the sanctions back on Iranian oil exports after President Donald Trump unilaterally pulled out of a 2015 nuclear accord between Iran and six world powers.
- Washington, however, granted Iran's eight main buyers of oil, mostly in Asia, waivers to the sanctions which allowed them limited purchases for six months.
- Analysts said the end to the exemptions would hit Asian buyers hardest..
- Iran's biggest oil customers are China and India, who have both been lobbying for extensions to sanction waivers.
- South Korea is a major buyer of Iranian condensate, an ultra-light form of crude oil on which its refining and petrochemical industry relies heavily.

Already tight:



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- Removing the sanctions exemptions would reduce oil supply from a market that is already tight because of U.S. sanctions against Iran and fellow OPEC-member Venezuela.
- Additionally, OPEC, along with other global oil producers, have already imposed supply cuts since the start of the year aimed at tightening global oil markets and propping up prices.
- As a result, Brent prices have risen by more than a third this year, while WTI has climbed more than 40 percent over the same period.

GS-3

Currency derivatives:

What are currency derivatives?

- Currency derivatives are exchange-based futures and options contracts that allow one to hedge against currency movements.
- Simply put, one can use a currency future contract to exchange one currency for another at a future date at a price decided on the day of the purchase of the contract.
- In India, one can use such derivative contracts to hedge against currencies like dollar, euro, U.K. pound and yen.
- Corporates, especially those with a significant exposure to imports or exports, use these contracts to hedge against their exposure to a certain currency.
- While all such currency contracts are cash-settled in rupees, the Securities and Exchange Board of India (SEBI), early this year, gave a go-ahead to start cross currency contracts as well on euro-dollar, pound-dollar and dollar-yen.

How can one trade in currency derivatives?

- The two national-level stock exchanges, BSE and the National Stock Exchange (NSE), have currency derivatives segments.
- It is just like trading in equity or equity derivatives segment and can be done through the trading app of the broker.



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- While a dollar-rupee contract size is \$1,000, one can trade by just providing the 2-3% margin.

Why were such derivatives introduced on exchange platforms?

- Prior to the introduction of currency derivatives on exchanges, there was only the OTC – over the counter – market to hedge currency risks and where forward contracts were negotiated and entered into.
- It was kind of an opaque and closed market where mostly banks and financial institutions traded.
- Exchange-based currency derivatives segment is a regulated and transparent market that can be used by small businesses and even individuals to hedge their currency risks.

Are the derivatives popular?

- The currency segment was unveiled in 2008 and since then, the volumes had registered a steady rise.
- The growth in the segment can further be ascertained from the steady rise in the turnover over the years.

Algae based Purification:

Israeli startup Aqwind, which has taken the lowest life-forms in the world, bacteria and algae, and harnessed them to a low-cost way to clean dirty water enough for irrigation.

How does it work?

- Like Aqwind, other water treatment plants rely on bacteria to break down the organic matter in our sewage and are energy-heavy.



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- But they need large amounts of energy to oxygenate the water for the bacteria to breathe.
- Aqwind, formerly known as Aquanos, added algae to the equation.
- Algae, as other plants do, breathe in carbon dioxide during the day and breathe out oxygen.
- Thus Aqwind reduced the energy requirement in water treatment by 70% to 90%, it explains.
- The first microbeings unleashed on our waste are anaerobic bacteria, which start the process of breaking down the organic material, and also produce the methane, which can be collected and sold.
- The algae come in en route to the second bacterial stage: breakdown by aerobic bacteria, who work on the waste while breathing oxygen produced by the algae. Which are breathing the carbon dioxide breathed out by the bacteria.
- It's a beautiful circle.
- The product of this process is water clean enough for agriculture, but isn't recommended for drinking.

Benefits of System:

- Not only that: the algae system is a net generator of energy.
- The system also produces methane, which can be used for power generation, explains Leshem, adding that existing wastewater treatment plants can be retrofitted to use the Aquanos algal system.
- The Aqwind system only uses about 50% of the electricity needed by the most efficient treatment plants; compared with inefficient ones, it saves around 90%, – making it suitable for low-income countries.

Could the system be matched with renewable energy resources such as solar panels?

- Theoretically yes, but it's a hair complicated; or the methane could be used to make electricity.
- In any case the energy solution has to be adapted to the system size served by the Aqwind system, which can run from a system for a single home to a city of say a million people.



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POink — the POLLution INK.

Why in News?

A student of textile engineering, Srivastava and his colleagues, after scraping up money from alumni, family and friends, were looking to build a machine — in essence an efficient filter — that could trap the particulate matter in the exhaust from diesel generators and ensure clean air is emitted by the engine.

These carbonised emissions, so extracted, are then turned into ink that can be used as paint or ink for printers.

About the device:

- Their device, Chakr Shield, a retrofit emission control device for diesel generators, is the mainstay of their company, Chakr Innovations (CI), now in the third year of its existence.
- Fourteen out of the 20 most polluted cities in the world are in India, as per figures compiled and released last year by the World Health Organization (WHO). Delhi topped that list.
- The Chakr Shield fits in the exhaust pipe of a diesel generator and captures 70 to 90 per cent of the particulate matter generated as engine exhaust.
- The device draws inspiration from commercially available diesel particulate filters (DPF), fitted in diesel cars in Europe to trap fine, toxic diesel emissions. But it turns the concept on its head.

How does it Work?

- The typical DPF is made up of a system of sieves that captures ultra-fine diesel particulate matter emitted from the engine tailpipe.
- The air from the heat of the engine “burns” these fine particles and converts them into carbon dioxide or monoxide.
- “Thus hazardous fine particulate matter is converted into less hazardous gases [which are emitted from the engine exhaust].
- Chakr Shield does away with the sieves, and works by cooling the engine exhaust. When small particles are rapidly cooled, they coagulate and



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expand, due to a phenomenon called thermophoresis, becoming easier to capture. I

Ink as a byproduct:

- With an estimated market of 232 million tonnes, valued at about 54 billion Indian rupees (USD 830 million), the Indian ink industry has grown at an average of more than 8 per cent per year over the past 10 years, according to trade publication InkWorld Magazine.
- The global printer ink market is expected to witness an annual growth rate of 4.7 per cent until 2023, reaching nearly USD 24 billion, said market research agency Prescient & Strategic (P&S).
- The company is looking to improve the efficiency of its product as well as explore "parallel applications."
- Activated carbon – products that employ charcoal or carbon with increased surface area (and thus a greater ability to absorb pollutants) – is one potential product. Such carbon can be used in water filters or similar applications.

Crying Snake:

Why in News?

A new species of 'crying' snake has been discovered in Lepa-Rada district of [Arunachal Pradesh](#).

The discovery of the non-venomous crying keelback, whose zoological name is *Hebius lacrima*, has been published in *Zootaxa*, the New Zealand-based scientific mega-journal for animal taxonomy.

Details:



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- The name for this keelback was suggested because of a dark spot under its eyes looking like a black tear that interrupts a white stripe running along the upper jaw to the back of its head and beyond.
- The specimen that Mr. Purkayastha obtained from a paddy field on a hill slope on the outskirts of Basar town was an adult male 48.7 cm long..
- The crying keelback can be differentiated from all other species of the genus *Hebius* by the combination of a distinctive broad, white, interrupted stripe along its body; three rows of irregular dark blotches (not vertically aligned) on each side; six cream, elongated spots on its anterior part and a smooth dorsal scale row.
- The snake, preferring to live near streams along paddy fields, was found to feed on small fish, tadpole, frogs and geckos.

Globally snakes are represented by 3,709 species. The northeast is home to some 110 species, with Arunachal Pradesh accounting for 55.

Other Discoveries:

- Several animals, birds, amphibians and insects have been discovered in Arunachal Pradesh in a little more than two decades.
- Assam-based Anwaraddin Choudhury discovered the Arunachal macaque (*Macaca munzala*) in 1997 but it was recognised as a new primate species in 2004. Another primate species called the white-cheeked macaque (*Macaca leucogenys*) was discovered by a four-member team in 2015.
- Another team led by Aparajita Dutta discovered the leaf deer (*Muntiacus putaoensis*) in 2002.
- Another major discovery was that of the Himalayan forest thrush in 2016. It was given the scientific name *Zoothera salimalii* after legendary ornithologist Salim Ali.



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