

Is tying the knot a way to untangle even grievous cases?

(GS Paper 2, Judiciary)

Why in news?

- Two recent decisions of the Supreme Court raise the question whether a convicted man can spare himself years of jail time by entering into what seems to be a rather opportune marriage with his victim or to a member of the victim's family.



Supreme Court intervention under Article 142:

- In June, the apex court used its extraordinary power under **Article 142** to release a man convicted of attempt to murder because he married his victim's sister while the case was still pending in the Madras High Court.
- The top court noted that all the people involved were living in the same locality.
- The parties involved had approached the court to set aside the conviction "in order to bring peace and in order to live cordially". The accused had spent just 18 months in jail.
- In the peculiar facts and circumstances of this case, particularly when there is a marriage within the families of the injured and the accused, the court could exercise its power under Article 142 of the Constitution. Supreme Court therefore, permit the parties to compound the offence.

Another case of convict under POSCO:

- The second case, in May, also from Tamil Nadu, concerned a **man who was convicted under the Protection of Children from Sexual Offences (POCSO) Act** for raping his minor niece. He had later married her.
- Taking note that the custom of avunculate marriage existed in Tamil Nadu, the apex court set aside his conviction, reasoning that it did not want to "disturb" their "marriage" and "happy family life".
- The court said its decision was based, again, on the "peculiar facts and circumstances of the case" and should not be used as precedent.
- In both cases, the top court seems to have placed the idea of domestic stability above the punishment due to a convicted man.

Crime against women in India:

- The National Commission for Women has reportedly marked a 30% rise in crime against women in 2021 compared with the 2020 figure, with more than half of them against their life and dignity. The NCW had received nearly 31,000 complaints of crimes committed against women in 2021.

India hands over 12 High Speed Guard Boats to Vietnam **(GS Paper 3, Internal Security)**

Why in news?

- Recently, Raksha Mantri handed over 12 High Speed Guard Boats to Vietnam during his visit to Hong Ha Shipyard in Hai Phong.
- The project is a glowing example of ‘Make in India, Make for the World’ as envisioned by Indian Prime Minister.



Key Highlights:

- The boats have been constructed under the **Government of India’s \$US 100 million Defence Line of Credit to Vietnam.**
- The initial five boats were built in the Larsen & Toubro (L&T) Shipyard in India and the other seven in Hong Ha Shipyard.

Background:

- Hanoi has procured the 12 boats under the LoC extended in 2014.
- In 2016, India has extended another \$500-million defence LoC to Vietnam and discussions are under way to identify the equipment.

Indian Defence Minister’s recent visit:

- The Raksha Mantri is on a three-day official visit to Vietnam.

- Both sides signed a ‘Joint Vision Statement on India-Vietnam Defence Partnership towards 2030’ to enhance defence cooperation.
- An MoU to simplify procedures for mutually beneficial logistic support was also inked between the two countries.

Record \$14.5 bn investment in Indian renewable energy sector, says IEEFA
 (GS Paper 3, Environment)

Why in news?

- As per new report by the **Institute for Energy Economics and Financial Analysis (IEEFA)**, investment in renewable energy in India reached a record \$14.5 billion in the last fiscal (2021-22).
- It saw an increase of 125 per cent compared to FY2020-21 and 72 per cent over the pre-pandemic FY2019-20.

India: FY21/22 US\$14.5bn Invested in Renewables

Acquisitions and bonds account for 75% of deal value



Factors attributing to its rise:

- After falling by 24 per cent from \$8.4 billion in FY2019-20 to \$6.4 billion in FY2020-21 when the pandemic curbed electricity demand, investment in renewable energy has made a strong comeback.
- The surge in renewables investment comes on the back of the **revival of electricity demand after the Covid-19 lull** and commitments by corporations and financial institutions to net-zero emissions and to exit fossil fuels.

Key investment deals:

- The key investment deals made during FY2021-22. It finds the **majority of the money flowed through acquisitions, which accounted for 42 per cent** of the total investment in FY2021-22. Most other big deals were packaged as bonds, debt equity investment and mezzanine funding.
- The largest deal was SB Energy's exit from the Indian renewables sector with a sale of assets worth \$3.5 billion to Adani Green Energy Limited (AGEL).
- The other key deals included Reliance New Energy Solar's acquisition of REC Solar holding assets and a host of companies like Vector Green, AGEL, ReNew Power, Indian Railway Finance Corporation and Azure Power, raising money in the bonds market.

India's target of 175 GW of renewable energy capacity:

- India added 15.5 gigawatt (GW) of renewable energy capacity in FY2021-22, which brought the total installed renewable capacity (excluding large hydro) to 110 GW as of March 2022, a long way off the target of 175 GW of renewable energy capacity by the end of 2022.
- Even with the surge in investment, renewable capacity will have to expand at a much faster rate to reach the target of 450 GW by 2030.
- The Indian renewable energy sector needs about \$30-\$40 billion annually to meet the 450 GW target. This would require a more than doubling of the current level of investment.

Way Forward:

- Rapid growth in renewable energy capacity will be needed to meet India's increasing electricity demand.
- To move to a sustainable pathway and reduce reliance on expensive fossil fuel imports, the government needs to act as an enabler by rolling out 'big bang' policies and reforms to accelerate the deployment of renewable energy.
- Investment is needed in flexible generation sources such as battery storage and pumped hydro; expansion of transmission and distribution networks; modernisation and digitalisation of the grid; domestic manufacturing of modules, cells, wafers and electrolyzers; promoting electric vehicles; and promoting more decentralised renewable energy such as rooftop solar.

IIT Madras develops robot to clean septic tanks without human intervention

(GS Paper 3, Science and Tech)

Why in news?

- Recently, researchers at the Indian Institute of Technology (IIT), Madras have developed a robot to clean septic tanks without human intervention.



HomoSEP:

- Named HomoSEP, ten units are planned to be deployed across Tamil Nadu and the researchers are in touch with sanitation workers to identify the locations, officials said.
- Gujarat and Maharashtra are being considered for the deployment of the robots that have been developed with an aim to eliminate manual scavenging in the next phase.

How it will a life saver for manual scavengers?

- The septic tank is a poisonous environment, filled with semi-solid and semi-fluid human faecal material that make up about two-thirds of the tank.
- Hundreds of deaths are reported every year across India, due to manual scavenging in septic tanks despite bans and prohibitory orders.
- The HomoSEP can homogenise the hard sludge in septic tanks through custom-developed rotary blade mechanism and pump the tank slurry using an integrated suction mechanism.

Stakeholders:

- HomoSEP was first developed as a final year Masters' project and showcased at the IIT Madras Carbon Zerp Challenge 2019, after receiving seed support from IIT Madras' Socially Relevant Projects initiative.
- GAIL (India) further supported product development and CapGemini supported efforts towards miniaturisation and portability of the robot, through their CSR initiatives.

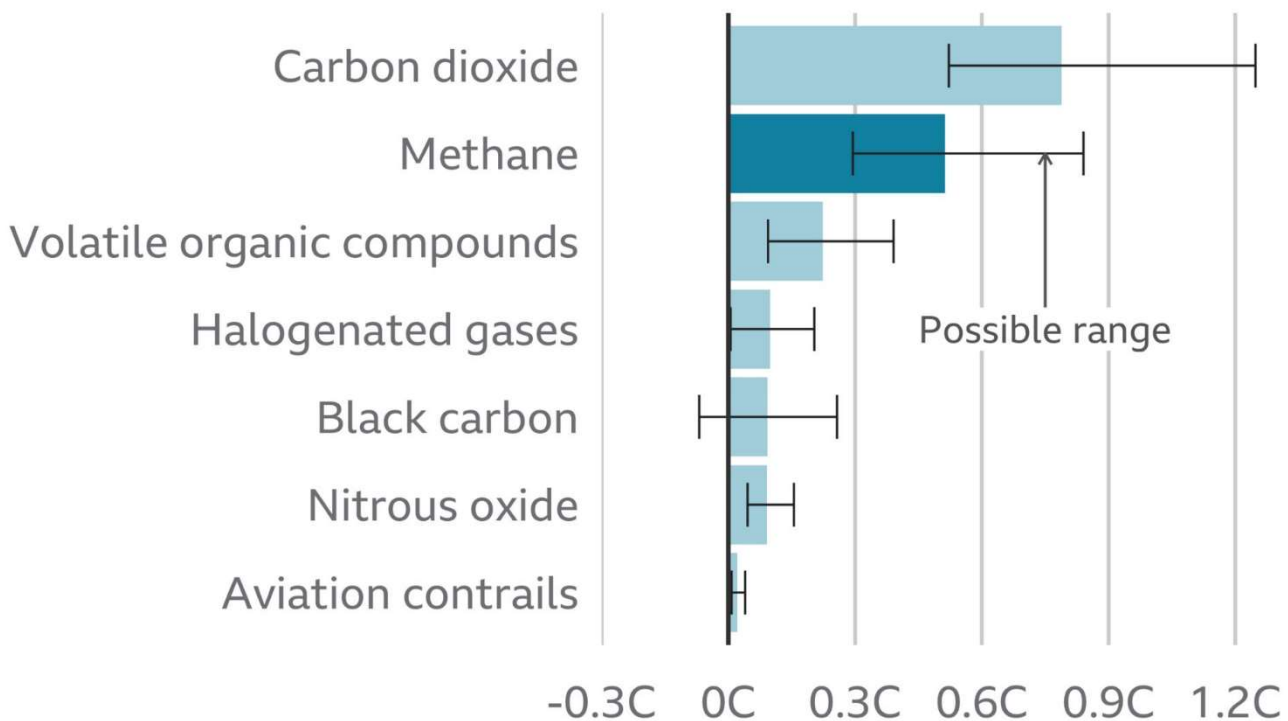
In a first, New Zealand proposes to tax farmers for livestock burps
 (GS Paper 3, Agriculture)

Why in news?

- New Zealand will tax burps by cattle and sheep in order to tackle one of its biggest sources of greenhouse gas emissions.

Methane is a major contributor to global warming

Contribution to warming in degrees Celsius



Highlights of New Draft:

- Farmers whose farms produce gas will be taxed from 2025. But those farmers who reduce emissions through feed additives, will get incentives. They can also use on-farm forestry to offset emissions.
- Revenue from the scheme will be invested in research, development and advisory services for farmers.

Livestock in New Zealand:

- New Zealand has more cattle and sheep than people; 10 million and 26 million respectively, against 5 million. It is a large agricultural exporter, with nearly half of its emissions, mainly methane, coming from agriculture.
- The country had not taxed its emissions from agriculture till now. The latest plan, if implemented, will make New Zealand the first country in this respect.

Why Methane?

- Methane, or CH₄ is **one of the primary greenhouse gases, along with carbon dioxide** or CO₂. Methane in the atmosphere reached record levels in 2019.
- Over a 100-year period, it (methane) is **28-34 times as warming as CO₂**. Over a 20-year period, it is around 84 times as powerful per unit of mass as carbon dioxide.

Anthropogenic sources of methane:

- Most methane emissions now come from agriculture such as cattle and rice production as well as rubbish dumps.

Global Methane Assessment: Benefits and Costs of Mitigating Methane Emissions report:

- Human-caused methane emissions must be cut by 45 per cent to avoid the worst effects of climate change, Global Methane Assessment: Benefits and Costs of Mitigating Methane Emissions a report released by the Climate and Clean Air Coalition and the United Nations Environment Programme had said.
- Such a cut would prevent a rise in global warming by up to 0.3 degrees Celsius by 2045.
- It would also prevent 260,000 premature deaths, 775,000 asthma-related hospital visits annually, as well as 25 million tonnes of crop losses.

Rhino reintroduction a hit in Assam reserve

Why in news?

- The one-horned rhinos of western Assam's Manas National Park, bordering Bhutan, are expected to have high life expectancy and significant growth in population, the 14th Assam rhino estimation census has revealed.
- But on the flip side, the 500-sq.-km park does not have "a wider representation of calves and sub-adults" to sustain the population structure unless it is supplemented through conservation translocations.



Background:

- Manas, a UNESCO World Heritage Site and a tiger reserve, had about 100 resident rhinos prior to 1990, but a prolonged ethno-political conflict thereafter took a heavy toll with extremist groups known to have traded the horns of the herbivores for weapons.

Outcome of rhino reintroduction programme:

- A rhino reintroduction programme under the Indian Rhino Vision 2020 was started in 2006. This entailed the translocation of rhinos from Kaziranga National Park and Pobitora Wildlife Sanctuary besides orphans hand-reared at the Centre for Wildlife Rehabilitation and Conservation at Kaziranga.
- The current rhino population in the park was estimated at 40 after the census on April 1 and 2.
- The park's rhinos have a male-female sex ratio of 1:1, arrived at without considering 10 calves and five sub-adults. But such a population may suffer losses if not supplemented through translocations.

Measures to check speed of vehicles in National Park:

- The Kaziranga National Park authorities have restricted the speed of vehicles on the highway adjoining the park to 40 km per hour. This is an annual step taken to prevent vehicles from hitting animals that move out of the park during floods.
- Six sensor-based cameras have been installed at nine designated animal corridors of the park to measure the speed of vehicles and impose fines on those who violate the order.
- The cameras are equipped with automatic number plate recognising system with radar for determining speed.
- As per the orders of the National Green Tribunal, owners of vehicles that do not adhere to the speed limit will be penalised.

Way Forward:

- A suitable strategy to bring in more rhinos from other rhino-bearing areas is required so as to have a wider representation of calves and sub-adults over time.